3GPP TSG-RAN WG3 Meeting #115-e R3-222905

Online, 21 February – 03 March 2022

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **38.423** | **CR** | **0633** | **rev** | **8** | **Current version:** | **16.8.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:***  | SCG BL CR to TS 38.423 |
|  |  |
| ***Source to WG:*** | Ericsson, Nokia, Nokia Shanghai Bell, ZTE |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | LTE\_NR\_DC\_enh2-Core |  | ***Date:*** |  2022-03-04 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | In the new R17 WID, it is required to support efficient activation/de-activation mechanisms for one SCG and SCells. RAN3 has discussed the possible solutions, and concluded that coordination between MN and SN is required. |
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| ***Summary of change:*** | RAN3#115:* Editorial changes.
* Merge TP R3-222554.

RAN3#114bis-e:* Describe conditions for partial rejection in the SN Addition procedure.
* Change to SCG Activation Status in the SN MODIFICATION REQUIRED message.
* Add new cause values.

RAN3#114-e:* Update codepoints and naming for SCG Activation related IEs.
* Introduce the SCG Activation Status IE to the S-NODE ADDITION REQUEST ACKNOWLEDGE message.

RAN3#113-e:Rebase on v16.7.0.Capture the agreed TP R3-214451 with the following changes:* Introduce the SCG Activation Response IE to the MN-initiated SN modification procedure.
* Remove the FFS for partial rejection in the SN-initiated SN modificaiton procedure.

RAN3#112-e:Rebase on v16.6.0.Introduce a new indicator to indicate SCG is requested to be activated or deactivated in the following messages:* S-NODE ADDITION REQUEST
* S-NODE MODIFICATION REQUEST
* S-NODE MODIFICATION REQUIRED

Corresponding procedural texts are added. |
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| ***Consequences if not approved:*** | SCG activation/deactivation is not supported. |
|  |  |
| ***Clauses affected:*** | 8.3.1.2, 8.3.3.2, 8.3.4.2, 9.1.2.1, 1, 9.1.2.5, 9.1.2.6, 9.1.2.8, 9.2.3.2, 9.2.3.xxx (new), 9.2.3.xxy (new), 9.3.4, 9.3.5, 9.3.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev 8: merge the agreed TP.Rev 7: editorial changes.Rev 6: capture the agreed TP R3-211337.Rev 5: rebase on v16.8.0.Rev 4: capture the agreed TP R3-216094.Rev 3: rebase on v16.7.0.Rev 2: capture the agreed TP R3-214451.Rev 1: rebase on v16.6.0.Rev 0: merge the agreed TP R3-212909. |

**------------------------------------------------Start of the change--------------------------------------------------**

## 8.3 Procedures for Dual Connectivity

### 8.3.1 S-NG-RAN node Addition Preparation

#### 8.3.1.1 General

The purpose of the S-NG-RAN node Addition Preparation procedure is to request the S-NG-RAN node to allocate resources for dual connectivity operation for a specific UE.

The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: S-NG-RAN node Addition Preparation, successful operation

The M-NG-RAN node initiates the procedure by sending the S-NODE ADDITION REQUEST message to the S-NG-RAN node.

When the M-NG-RAN node sends the S-NODE ADDITION REQUEST message, it shall start the timer TXnDCprep.

The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *QoS Flow Level QoS Parameters* IE for each QoS flow shall follow the principles specified for the PDU Session Resource Setup procedure in TS 38.413 [5].

The S-NG-RAN node shall choose the ciphering algorithm based on the information in the *UE Security Capabilities* IE and locally configured priority list of AS encryption algorithms and apply the key indicated in the *S-NG-RAN node Security Key* IE as specified in TS 33.501 [28].

If the *TSC Traffic Characteristics* IE is included for a QoS flow in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [5].

If the *Additional QoS* *Flow Information* IE is included for a QoS flow in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [5].

For each GBR QoS flow, if the *Alternative QoS Parameters Sets* IE is included in the *GBR QoS Flow Information* IE, the S-NG-RAN node shall, if supported, behave the same as the NG-RAN node in the PDU Session Resource Setup procedure specified in TS 38.413 [5].

For each PDU session, if the *Network Instance* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE contained in the *PDU Session Resources To Be Added List* IE and the *Common Network Instance* IE is not present, the S-NG-RAN node shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [7].

For each GBR QoS flow, if the *Offered GBR QoS Flow Information* IE is included in the *QoS Flows To Be Setup List* IE contained in the *PDU Session Resource Setup Info – SN terminated* IE, the S-NG-RAN node may request the M-NG-RAN node to configure the DRB to which that QoS flow is mapped with MCG resources.

For each PDU session, if the *Non-GBR Resources Offered* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE contained in the *PDU Session Resources To Be Added List* IE and set to "true", the S-NG-RAN node may request the M-NG-RAN node to configure DRBs to which non-GBR QoS flows of the PDU session are mapped with MCG resources.

For each PDU session, if the *Common* *Network Instance* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE contained in the *PDU Session Resources To Be Added List* IE, the S-NG-RAN node shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [7].

Redundant transmission:

- For each PDU session, if the *Redundant UL NG-U UP TNL Information at UPF* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE, the S-NG-RAN node shall, if supported, use it as the uplink termination point for the user plane data for this PDU session for the redundant transmission and it shall include the *Redundant DL NG-U UP TNL Information at NG-RAN* IE in the *PDU Session Resource Setup Response Info – SN terminated* IE as described in TS 23.501 [9].

- For each PDU session, if the *Redundant Common Network Instance* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE the S-NG-RAN node shall, if supported, use it when selecting transport network resource for the redundant transmission as specified in TS 23.501 [7].

- For each PDU session for which the *Redundant QoS Flow Indicator* IE is include in *QoS Flows To Be Setup List* IE contained in the *S-NODE ADDITION REQUEST* message, the S-NG-RAN node shall, if supported, store and use it as specified in TS 23.501 [7].

- For each PDU session, if the *Redundant PDU Session Information* IE is included in the *PDU Session Resource Setup Info - SN terminated* IE in the S-NODE ADDITION REQUEST message, the S-NODE-RAN node shall, if supported, store the received information in the UE context and setup the redundant user plane resources for the concerned PDU session, as specified in TS 23.501 [7].

- For each PDU session resource successfully setup for which the *Redundant PDU Session Information* IE is included in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall, if supported, include the *Used RSN Information* IE in the *PDU Session Resource Setup Response Info – SN terminated* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message.

If the S-NODE ADDITION REQUEST message contains the *Selected PLMN* IE, the S-NG-RAN node may use it for RRM purposes.

If the S-NODE ADDITION REQUEST message contains the *Expected UE Behaviour* IE, the S-NG-RAN node shall, if supported, store this information and may use it to optimize resource allocation.

If the S-NODE ADDITION REQUEST message contains the *Mobility Restriction List* IE, the S-NG-RAN node, if supported, shall store this information and use it to select an appropriate SCG.

If the S-NODE ADDITION REQUEST message contains the *Index to RAT/Frequency Selection Priority* IE, the S-NG-RAN node may use it for RRM purposes.

If the S-NG-RAN node is a gNB and the S-NODE ADDITION REQUEST message contains the *PCell ID* IE, the S-NG-RAN node shall search for the target NR cell among the NR neighbour cells of the PCell indicated, as specified in the TS 37.340 [8].

If the S-NODE ADDITION REQUEST message contains the *S-NG-RAN node PDU Session Aggregate Maximum Bit Rate* IE, the S-NG-RAN node may use it for RRM purposes.

If the S-NODE ADDITION REQUEST message contains the *MR-DC Resource Coordination Information* IE, the S-NG-RAN node should forward it to lower layers and it may use it for the purpose of resource coordination with the M-NG-RAN node, or to coordinate with sidelink resources used in the M-NG-RAN node. The S-NG-RAN node shall consider the value of the received *UL Coordination Information* IE valid until reception of a new update of the IE for the same UE. The S-NG-RAN node shall consider the value of the received *DL Coordination Information* IE valid until reception of a new update of the IE for the same UE. If the *E-UTRA Coordination Assistance Information* IE or the *NR Coordination Assistance Information* IE is contained in the *MR-DC Resource Coordination Information* IE, the S-NG-RAN node shall, if supported, use the information to determine further coordination of resource utilisation between the S-NG-RAN node and the M-NG-RAN node.

If the S-NODE ADDITION REQUEST message contains the *NE-DC TDM Pattern* IE, the S-NG-RAN node should forward it to lower layers and use it for the purpose of single uplink transmission. The S-NG-RAN node shall consider the value of the received *NE-DC TDM Pattern* IE valid until reception of a new update of the IE for the same UE.

If the S-NODE ADDITION REQUEST message contains the *QoS Flow Mapping Indication* IE, the S-NG-RAN node may take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

For each bearer for which allocation of the PDCP entity is requested at the S-NG-RAN node:

- the M-NG-RAN node may propose to apply forwarding of downlink data by including the *DL Forwarding* IE within *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE ADDITION REQUEST message. For each bearer that it has decided to admit, the S-NG-RAN node may include the *DL Forwarding GTP Tunnel Endpoint* IE within the *PDU Session Resource Setup Response Info – SN terminated* IE of the S-NODE ADDITION REQUEST ACKNOWLEDGE message to indicate that it accepts the proposed forwarding of downlink data for this bearer.

- the S-NG-RAN node may include for each bearer in the *PDU Session Resource Setup Response Info – SN terminated* IE the *UL Forwarding GTP Tunnel Endpoint* IE to indicates it request data forwarding of uplink packets to be performed for that bearer.

- the M-NG-RAN node shall include *RLC Mode* IE for each bearer offloaded from M-NG-RAN node to S-NG-RAN node in the *DRBs to QoS Flow Mapping List* IE within the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE ADDTION REQUEST message, and the *RLC Mode* IE indicates the mode that the M-NG-RAN used for the DRB when it was hosted at the M-NG-RAN node.

For each bearer for which the PDCP entity is at the M-NG-RAN node:

- the M-NG-RAN node shall include the *RLC mode* IE for each bearer in the *DRBs To Be Setup List* IE within the *PDU Session Resource Setup Info – MN terminated* IE of the S-NODE ADDTION REQUEST message to indicate the RLC mode has been configured at the M-NG-RAN node, so that the S-NG-RAN node shall configure the same RLC mode for this MN terminated split bearer.

The M-NG-RAN node may also propose to apply forwarding of UL data when offloading QoS flows for which in-order delivery is requested by including the *UL Forwarding* *Proposal* IE in the *Data Forwarding and Offloading Info from source NG-RAN node* IE within the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE ADDITION REQUEST message. The S-NG-RAN node may include the *PDU Session Level UL Data Forwarding UP TNL Information* IE in the *Data Forwarding Info from target NG-RAN node* IE within the *PDU Session Resource Setup Response Info – SN terminated* IE of the S-NODE ADDITION REQUEST ACKNOWLEDGE message to indicate that it accepts the proposed forwarding.

If the *Masked IMEISV* IE is contained in the S-NODE ADDITION REQUEST message the S-NG-RAN node shall, if supported, use it to determine the characteristics of the UE for subsequent handling.

If the *UE Radio Capability ID* IE is contained in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall, if supported, store this information in the UE context and use it as defined in TS 23.501 [7] and TS 23.502 [13].

The S-NG-RAN node shall report to the M-NG-RAN node, in the S-NODE ADDITION REQUEST ACKNOWLEDGE message, the result for all the requested PDU session resources in the following way:

- A list of PDU session resources which are successfully established shall be included in the *PDU Session Resources Admitted To Be Added List* IE.

- A list of PDU session resources which failed to be established shall be included in the *PDU Session Resources Not Admitted List* IE.

Upon reception of the S-NODE ADDITION REQUEST ACKNOWLEDGE message the M-NG-RAN node shall stop the timer TXnDCprep.

If the S-NODE ADDITION REQUEST ACKNOWLEDGE message contains the *MR-DC Resource Coordination Information* IE, the M-NG-RAN node may use it for the purpose of resource coordination with the S-NG-RAN node. The M-NG-RAN node shall consider the value of the received *UL Coordination Information* IE valid until reception of a new update of the IE for the same UE. The M-NG-RAN node shall consider the value of the received *DL Coordination Information* IE valid until reception of a new update of the IE for the same UE. If the *E-UTRA Coordination Assistance Information* IE or the *NR Coordination Assistance Information* IE is contained in the *MR-DC Resource Coordination Information* IE, the M-NG-RAN node shall, if supported, use the information to determine further coordination of resource utilisation between the M-NG-RAN node and the S-NG-RAN node.

The S-NG-RAN node may include for each bearer in the *DRBs To Be Setup List* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message the *PDCP SN Length* IE to indicate the PDCP SN length for that DRB.

If the *S-NG-RAN node UE XnAP ID* IE is contained in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall, if supported, store this information and use it as defined in TS 37.340 [8].

If the S-NODE ADDITION REQUEST message contains the *PDCP SN Length* IE, the S-NG-RAN node shall, if supported, store this information and use it for lower layer configuration of the concerned MN terminated bearer.

If the S-NODE ADDITION REQUEST message contains the *SN Addition Trigger Indication* IE, the S-NG-RAN node shall include the *RRC config indication* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message to inform the M-NG-RAN node if the S-NG-RAN node applied full or delta configuration, as specified in TS 37.340 [8].

If the S-NODE ADDITION REQUEST message contains the *S-NG-RAN node Maximum Integrity Protected Data Rate* *Uplink* IE or the *S-NG-RAN node Maximum Integrity Protected Data Rate Downlink* IE, the S-NG-RAN node shall use the received information when enforcing the maximum integrity protected data rate for the UE.

If the *Security Indication* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE ADDITION REQUEST message, the behaviour of the S-NG-RAN node shall be the same as specified for the same IE in the *PDU Session Resources To Be Setup List* IE in the Handover Preparation procedure, for the concerned PDU session, and the S-NG-RAN node shall include the *Security Result* IE in the *PDU Session Resource Setup Response Info – SN terminated* IE.

If the *Security Result* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE ADDITION REQUEST message, the S-NG-RAN node may take the information into account when deciding whether to perform user plane integrity protection or ciphering for the DRBs that it establishes for the concerned PDU session, except if the *Split Session Indicator* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE and set to "split", in which case it shall perform user plane integrity protection or ciphering according to the information in the *Security Result* IE*.* If the S-NG-RAN node is an ng-eNB, it shall reject all PDU sessions for which the *Integrity Protection Indication* IE is set to "required" as specified in TS 33.501 [28]. If either the S-NG-RAN node or the M-NG-RAN node is an ng-eNB, the S-NG-RAN node shall behave according to clause 6.10.4 of TS 33.501 [28] for PDU sessions for which the *Integrity Protection Indication* IE is set to "preferred".

The S-NG-RAN node may include the *Location Information at S-NODE* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message, if respective information is available at the S-NG-RAN node.

If the *Location Information at S-NODE Reporting* IE set to "pscell" is included in the S-NODE ADDITION REQUEST, the S-NG-RAN node shall, start providing information about the current location of the UE. If the *Location Information at S-NODE* IE is included in the S-NODE ADDITION REQUEST ACKNOWLEDGE, the M-NG-RAN node shall store the included information so that it may be transferred towards the AMF.

If the *Default DRB Allowed* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE ADDITION REQUEST message and set to "true", the S-NG-RAN node may configure the default DRB for the PDU session.

If the S-NODE ADDITION REQUEST ACKNOWLEDGE message includes the *DRB IDs taken into use* IE, the M-NG-RAN node, if applicable, shall act as specified in TS 37.340 [8].

If *Trace Activation* IE has previously been received for this UE, it shall be included in the S-NODE ADDITION REQUEST message. If the *Trace Activation* IE is included in the S-NODE ADDITION REQUEST message, the S-NG-RAN node shall, if supported, initiate the requested trace function as described in TS 32.422 [23].

If the *Requested Fast MCG recovery via SRB3* IE set to "true" is included in the S-NODE ADDITION REQUEST message and the S-NG-RAN node decides to configure fast MCG link recovery via SRB3 as specified in TS 37.340 [8], the S-NG-RAN shall, if supported, include the *Available fast MCG recovery via SRB3* IE set to "true" in the S-NODE ADDITION REQUEST ACKNOWLEDGE message.

If the *QoS Monitoring Request* IE is included in the *QoS Flow Level QoS Parameters* IE for a QoS flow contained in the *DRBs To Be Setup List* IE of the *PDU Session Resource Setup Info – MN terminated* IE, the S-NG-RAN node shall, if supported, use it to configure lower layers for the purpose of delay measurement and QoS monitoring as specified in TS 23.501 [7]. If the *QoS Monitoring Reporting Frequency* IE is included in the *QoS Flow Level QoS Parameters* IE for a QoS flow contained in the *DRBs To Be Setup List* IE of the *PDU Session Resource Setup Info – MN terminated* IE, the S-NG-RAN node shall, if supported, use it for RAN part delay reporting.

For each QoS flow which has been successfully established in the S-NG-RAN node, if the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the *PDU Session Resource Setup Info – SN terminated* IE, the S-NG-RAN node shall store this information, and, if supported, perform delay measurement and QoS monitoring as specified in TS 23.501 [7]. If the *QoS Monitoring Reporting Frequency* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the *PDU Session Resource Setup Info – SN terminated* IE, the S-NG-RAN node shall store this information, and, if supported, use it for RAN part delay reporting. In case such a QoS flow is included in the *DRBs To Be Setup List* IE of the *PDU Session Resource Setup Response Info – SN terminated* IE, the M-NG-RAN node shall, if supported, use it to configure lower layers for the purpose of delay measurement and QoS monitoring. If the *QoS Monitoring Reporting Frequency* IE is included in the *DRBs To Be Setup List* IE of the *PDU Session Resource Setup Response Info – SN terminated* IE, the M-NG-RAN node shall, if supported, use it for RAN part delay reporting.

For each DRB configured as MN-terminated split bearer/SCG bearer, if the *QoS Mapping Information* IE is included in the *DRBs Admitted List* IE in the *PDU Session Resource Setup Response Info – MN terminated* IE of the S-NODE ADDITION REQUEST ACKNOWLEDGE message, the M-NG-RAN node shall, if supported, use it to set DSCP and/or flow label fields for the downlink IP packets which are transmitted from M-NG-RAN node to S-NG-RAN node through the GTP tunnels indicated by the *UP Transport Layer Information* IE.

If the *SCG Activation Request* IE is included in the S-NODE ADDITION REQUEST message, the S-NG-RAN node may use it to configure SCG resources as specified in TS 37.340 [8], and if supported, shall include the *SCG Activation Status* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message. If the *SCG Activation Request* IE in the S-NODE ADDITION REQUEST message is set to ‘Activate SCG’, the S-NG-RAN node shall, if supported, activate the SCG resources and set the *SCG Activation Status* IE in the S-NODE ADDITION REQUEST ACKNOWLEDGE message to ‘SCG activated’.

**Interactions with the S-NG-RAN node Reconfiguration Completion procedure:**

If the S-NG-RAN node admits at least one PDU session resource, the S-NG-RAN node shall start the timer TXnDCoverall when sending the S-NODE ADDITION REQUEST ACKNOWLEDGE message to the M-NG-RAN node. The reception of the S-NODE RECONFIGURATION COMPLETE message shall stop the timer TXnDCoverall.

**Interaction with the Activity Notification procedure**

Upon receiving an S-NODE ADDITION REQUEST message containing the *Desired Activity Notification Level* IE, the S-NG-RAN node shall, if supported, use this information to decide whether to trigger subsequent Activation Notification procedures according to the requested notification level.

**--------------------------------------------------Next change-----------------------------------------------------**

### 8.3.3 M-NG-RAN node initiated S-NG-RAN node Modification Preparation

#### 8.3.3.1 General

This procedure is used to enable an M-NG-RAN node to request an S-NG-RAN node to either modify the UE context at the S-NG-RAN node or to query the current SCG configuration for supporting delta signalling in M-NG-RAN node initiated S-NG-RAN node change, or to provide the S-RLF-related information to the S-NG-RAN node.

The procedure uses UE-associated signalling.

#### 8.3.3.2 Successful Operation



Figure 8.3.3.2-1: M-NG-RAN node initiated S-NG-RAN node Modification Preparation, successful operation

The M-NG-RAN node initiates the procedure by sending the S-NODE MODIFICATION REQUEST message to the S-NG-RAN node.

When the M-NG-RAN node sends the S-NODE MODIFICATION REQUEST message, it shall start the timer TXnDCprep.

The S-NODE MODIFICATION REQUEST message may contain

- within the *UE Context Information* IE;

- PDU session resources to be added within the *PDU Session Resources To Be Added Item* IE;

- PDU session resources to be modified within the *PDU Session Resources To Be Modified Item* IE;

- PDU session resources to be released within the *PDU Session Resources To Be Released Item* IE;

- the *S-NG-RAN node Security Key* IE;

- the *S-NG-RAN node UE Aggregate Maximum Bit Rate* IE;

- the *M-NG-RAN node to S-NG-RAN node Container* IE;

- the *PDCP Change Indication* IE;

- the *SCG Configuration Query* IE;

- the *Requested split SRBs IE*;

- the *Requested split SRBs release* IE;

- the *Requested fast MCG recovery via SRB3 IE*;

- the *Requested fast MCG recovery via SRB3 Release* IE;

- the *Additional DRB IDs* IE;

- the *MR-DC Resource Coordination Information* IE.

If the S-NODE MODIFICATION REQUEST message contains the *Selected PLMN* IE, the S-NG-RAN node may use it for RRM purposes.

If the S-NODE MODIFICATION REQUEST message contains the *Mobility Restriction List* IE, the S-NG-RAN node shall

- replace the previously provided Mobility Restriction List by the received Mobility Restriction List in the UE context;

- use this information to select an appropriate SCG.

If the *S-NG-RAN node UE Aggregate Maximum Bit Rate* IE is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall:

- replace the previously provided S-NG-RAN node UE Aggregate Maximum Bit Rate by the received S-NG-RAN node UE Aggregate Maximum Bit Rate in the UE context;

- use the received S-NG-RAN node UE Aggregate Maximum Bit Rate for Non-GBR Bearers for the concerned UE as defined in TS 37.340 [8].

If the S-NODE MODIFICATION REQUEST message contains the *Index to RAT/Frequency Selection Priority* IE, the S-NG-RAN node may use it for RRM purposes.

If the S-NODE MODIFICATION REQUEST message contains the *S-NG-RAN node PDU Session Aggregate Maximum Bit Rate* IE, the S-NG-RAN node may use it for RRM purposes.

If the S-NODE MODIFICATION REQUEST message contains the *MR-DC Resource Coordination Information* IE, the S-NG-RAN node should forward it to lower layers and it may use it for the purpose of resource coordination with the M-NG-RAN node, or to coordinate with sidelink resources used in the M-NG-RAN node. The S-NG-RAN node shall consider the value of the received *UL Coordination Information* IE valid until reception of a new update of the IE for the same UE. The S-NG-RAN node shall consider the value of the received *DL Coordination Information* IE valid until reception of a new update of the IE for the same UE. If the *E-UTRA Coordination Assistance Information* IE or the *NR Coordination Assistance Information* IE is contained in the *MR-DC Resource Coordination Information* IE, the S-NG-RAN node shall, if supported, use the information to determine further coordination of resource utilisation between the S-NG-RAN node and the M-NG-RAN node.

If the S-NODE MODIFICATION REQUEST message contains the *NE-DC TDM Pattern* IE, the S-NG-RAN node should forward it to lower layers and use it for the purpose of single uplink transmission. The S-NG-RAN node shall consider the value of the received *NE-DC TDM Pattern* IE valid until reception of a new update of the IE for the same UE.

The allocation of resources according to the values of the *Allocation and Retention Priority* IE included in the *QoS Flow Level QoS Parameters* IE for each QoS flow shall follow the principles specified for the PDU Session Resource Setup procedure in TS 38.413 [5].

If the *Additional QoS* *Flow Information* IE is included for a QoS flow in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [5].

For each GBR QoS flow, if the *Alternative QoS Parameters Sets* IE is included in the *GBR QoS Flow Information* IE, the S-NG-RAN node shall, if supported, behave the same as the NG-RAN node in the PDU Session Resource Setup procedure specified in TS 38.413 [5].

If the *TSC Traffic Characteristics* IE is included for a QoS flow in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall behave the same as the NG-RAN node in the PDU Session Resource Setup procedure, specified in TS 38.413 [5].

For each PDU session, if the *Network Instance* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE and in the *PDU Session Resource Modification Info – SN terminated* IE and the *Common Network Instance* IE is not present, the S-NG-RAN node shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [7].

For each PDU session, if the *Common* *Network Instance* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE and in the *PDU Session Resource Modification Info – SN terminated* IE, the S-NG-RAN node shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [7].

For each GBR QoS flow, if the *Offered GBR QoS Flow Information* IE is included in the *QoS Flows To Be Setup List* IE contained in the *PDU Session Resource Setup Info – SN terminated* IE, the S-NG-RAN node may request the M-NG-RAN node to configure the DRB to which that QoS flow is mapped with MCG resources.

For each PDU session, if the *Non-GBR Resources Offered* IE is included in the *PDU Session Resource Modification Info – SN terminated* IE contained in the *PDU Session Resources To Be Added List* IE and set to "true", the S-NG-RAN node may request the M-NG-RAN node to configure the DRBs to which non-GBR QoS flows of the PDU session are mapped with MCG resources.

If at least one of the requested modifications is admitted by the S-NG-RAN node, the S-NG-RAN node shall modify the related part of the UE context accordingly and send the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message back to the M-NG-RAN node.

The M-NG-RAN node shall include *RLC Mode* IE for each bearer offloaded from M-NG-RAN node to S-NG-RAN node in the *DRBs to QoS Flow Mapping List* IE within the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message, and the *RLC Mode* IE indicates the mode that the M-NG-RAN used for the DRB when it was hosted at the M-NG-RAN node.

The S-NG-RAN node shall include the PDU sessions for which resources have been either added or modified or released at the S-NG-RAN node either in the *PDU Session Resources Admitted To Be Added List* IE or the *PDU Session Resources Admitted To Be Modified List* IE or the *PDU Session Resources Admitted To Be Released List* IE. The S-NG-RAN node shall include the PDU sessions that have not been admitted in the *PDU Session Resources Not Admitted List* IE with an appropriate cause value.

If the M-NG-RAN node requests transfer of the PDCP hosting from the S-NG-RAN node to the M-NG-RAN node for a PDU session, in which case the S-NODE MODIFICATION REQUEST message contains an PDU session resource to be released which is configured with the SCG bearer option within the *PDU Session Resources To Be Released List* IE, the S-NG-RAN node shall include the *RLC Mode* IE within the *DRBs To Be Released List* IE in the *PDU Session Resources admitted to be released List – SN terminated* IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message. The the *RLC Mode* IE indicates the RLC mode that the S-NG-RAN node uses for the DRB.

If the *QoS Flow Mapping Indication* IE is included in the S-NODE MODIFICATION REQUEST message for a QoS flow to be modified, the S-NG-RAN node may replace and take it into account that only the uplink or downlink QoS flow is mapped to the DRB.

If the S-NODE MODIFICATION REQUEST message contains for a PDU session resource to be modified which is configured with the SN terminated bearer option, the *UL NG-U UP TNL Information at UPF* IE the S-NG-RAN node shall use it as the new UL NG-U address.

If the S-NODE MODIFICATION REQUEST message contains for a PDU session resource to be modified which is configured with the MN terminated bearer option, the *MN UL PDCP UP TNL Information* IE the S-NG-RAN node shall use it as the new UL Xn-U address.

Redundant transmission:

- If the S-NODE MODIFICATION REQUEST message contains for a PDU session resource to be modified which is configured with the SN terminated bearer option, the *Redundant UL NG-U UP TNL Information at UPF* IE, the S-NG-RAN node shall, if supported, use it as the new UL NG-U address for the redundant transmission as specified in TS 23.501 [7].

- For each PDU session, if the *Redundant Common Network Instance* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE or in the *PDU Session Resource Modification Info – SN terminated* IE, the S-NG-RAN node shall, if supported, use it when selecting transport network resource for the redundant transmission as specified in TS 23.501 [7].

- For each PDU session, if the *Redundant QoS Flow Indicator* IE is set to false for all QoS flows, the S-NG-RAN node shall, if supported, stop the redundant transmission and release the redundant tunnel for the concerned PDU Session as specified in TS 23.501 [7].

- For each PDU session for which the *Redundant QoS Flow Indicator* IE is included in the *S-NODE MODIFICATION REQUEST* message, the S-NG-RAN node shall, if supported, store and use it as specified in TS 23.501 [7].

- For each PDU session, if the *Redundant PDU Session Information* IE is included in the *PDU Session Resource Setup Info - SN terminated* IE in the S-NODE MODIFICATION REQUEST message, the S-NODE-RAN node shall, if supported, store the received information in the UE context and setup the redundant user plane for the concerned PDU session, as specified in TS 23.501 [7].

- For each PDU session resource successfully setup for which the *Redundant PDU Session Information* IE is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall, if supported, include the *Used RSN Information* IE in the *PDU Session Resource Setup Response Info – SN terminated* IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message.

If the S-NODE MODIFICATION REQUEST message contains the *QoS flows To Be Released List* within the *PDU Session Resource Modification Info – SN terminated* IE, the S-NG-RAN node may propose to apply forwarding of UL data for the QoS flows for which in-order delivery is requested by including the *UL Forwarding* *Proposal* IE in the *Data Forwarding and Offloading Info from source NG-RAN node* IE within the *PDU Session Resource Modification Response Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message.

For a PDU session resource to be modified which is configured with the SN terminated bearer option the S-NG-RAN node may include in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message the *DL NG-U UP TNL Information at NG-RAN* IE.

For a PDU session resource to be modified which is configured with the MN terminated bearer option the S-NG-RAN node may include in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message the *SN DL SCG UP TNL Information* IE.

If the *PDCP Change Indication* IE is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall act as specified in TS 37.340 [8].

Upon reception of the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message the M-NG-RAN node shall stop the timer TXnDCprep. If the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message has included the *S-NG-RAN node to M-NG-RAN node Container* IE, the M-NG-RAN node is then defined to have a Prepared S-NG-RAN node Modification for that Xn UE-associated signalling.

If the *SCG Configuration Query* IE is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall provide corresponding radio configuration information within the *S-NG-RAN node to M-NG-RAN node Container* IE and may provide the corresponding data forwarding related information within the *PDU Session Resources with Data Forwarding List* IE as specified in TS 37.340 [8].

For each bearer for which allocation of the PDCP entity is requested at the S-NG-RAN node:

- if applicable, the M-NG-RAN node may propose to apply forwarding of downlink data by including the DL Forwarding IE within the PDU Session Resource Setup Info – SN terminated IE of the S-NODE MODIFICATION REQUEST message. For each bearer that it has decided to admit, the S-NG-RAN node may include the DL Forwarding GTP Tunnel Endpoint IE within the PDU Session Resource Setup Response Info – SN terminated IE of the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message to indicate that it accepts the proposed forwarding of downlink data for this bearer.

- the S-NG-RAN node may include for each bearer in the PDU Session Resource Setup Response Info – SN terminated IE the UL Forwarding GTP Tunnel Endpoint IE to indicate it requests data forwarding of uplink packets to be performed for that bearer.

The M-NG-RAN node may propose to apply forwarding of UL data when offloading QoS flows for which in-order delivery is requested by including the *UL Forwarding Proposal* IE in the *Data Forwarding and Offloading Info from source NG-RAN node* IE within the *PDU Session Resource Setup Info – SN terminated* IE or *PDU Session Resource Modification Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message. The S-NG-RAN node may include the *PDU Session Level UL Data Forwarding UP TNL Information* IE in the *Data Forwarding Info from target NG-RAN node* IE within the *PDU Session Resource Setup Response Info – SN terminated* IE or *PDU Session Resource Modification Response Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message to indicate that it accepts the proposed forwarding.

If the S-NODE MODIFICATION REQUEST message contains the *Requested Split SRBs* IE, the S-NG-RAN node may use it to add split SRBs. If the S-NODE MODIFICATION REQUEST message contains the *Requested Split SRBs* *release* IE, the S-NG-RAN node may use it to release split SRBs.

If the *Requested Fast MCG recovery via SRB3* IE set to "true" is included in the S-NODE MODIFICATION REQUEST message and the S-NG-RAN decides to configure fast MCG link recovery via SRB3 as specified in TS 37.340 [8], the S-NG-RAN node shall, if supported, include the *Available fast MCG recovery via SRB3* IE set to "true" in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message. If the *Requested Fast MCG recovery via SRB3 Release* IE set to "true" is included in the S-NODE MODIFICATION REQUEST message and the S-NG-RAN decides to release fast MCG link recovery via SRB3, the S-NG-RAN shall, if supported, include the *Release fast MCG recovery via SRB3* IE set to "true" in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message.

If the *Lower Layer presence status change* IE set to "release lower layers" is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall act as specified in TS 37.340 [8].

If the *Lower Layer presence status change* IE set to "re-establish lower layers" is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall act as specified in TS 37.340 [8].

If the *Lower Layer presence status change* IE set to "suspend lower layers" is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall act as specified in TS 37.340 [8].

If the *Lower Layer presence status change* IE set to "resume lower layers" is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall act as specified in TS 37.340 [8].

The M-NG-RAN node may include for each bearer in the *DRBs To Be Modified List* IE in the S-NODE MODIFICATION REQUEST message the *RLC Status* IE to indicate that RLC has been reestablished at the M-NG-RAN node and the S-NG-RAN node may trigger PDCP data recovery.

If the S-NODE MODIFICATION REQUEST message contains the *PDCP SN Length* IE in the *DRBs To Be Setup List* IE, the S-NG-RAN node shall, if supported, store this information and use it for lower layer configuration of the concerned MN terminated bearer.

If the *PDCP Duplication Configuration* IE in the *PDU Session Resource Modification Info – MN terminated* IE is contained in the S-NODE MODIFICATION REQUEST message and set to "configured", the S-NG-RAN node shall, if supported, add the RLC entity of secondary path and the RLC entity of all additional path(s) for the indicated DRB. And if the S-NODE MODIFICATION REQUEST message contains the *Duplication Activation* IE, the S-NG-RAN node shall, if supported, store this information and use it for the purpose of PDCP duplication.

If the S-NODE MODIFICATION REQUEST message contains *RLC Duplication Information* IE, the S-NG-RAN node shall, if supported, store this information and use it for the purpose of PDCP duplication for the indicated DRB with more than two RLC entities.

If the *PDCP Duplication Configuration* IE in the *PDU Session Resource Modification Info – MN terminated* IE is contained in the S-NODE MODIFICATION REQUEST message and set to "de-configured", the S-NG-RAN node shall, if supported, delete the RLC entity of secondary path and the RLC entity of all additional path(s) for the indicated DRB.

The S-NG-RAN node may include for each bearer in the *DRBs To Be Setup List* IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message the *PDCP SN Length* IE to indicate the PDCP SN length for that DRB.

The S-NG-RAN node may include the *QoS Flow Mapping Indication* IE for a QoS flow in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message to indicate that only the uplink or downlink QoS flow is mapped to the DRB.

If the *Additional DRB* IDs IE is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall store this information and use it together with previously provided DRB IDs if any, for SN terminated bearers.

If the S-NODE MODIFICATION REQUEST message contains the *S-NG-RAN node Maximum Integrity Protected Data Rate Uplink* IE or the *S-NG-RAN node Maximum Integrity Protected Data Rate Downlink* IE, the S-NG-RAN node shall use the received information when enforcing the maximum integrity protected data rate for the UE.

If the *Security Indication* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message, the behaviour of the S-NG-RAN node shall be the same as specified for the same IE in the *PDU Session Resources To Be Setup List* IE in the Handover Preparation procedure, for the concerned PDU session, and the S-NG-RAN node shall include the *Security Result* IE in the *PDU Session Resource Setup Response Info – SN terminated* IE.

If the *Security Result* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node may take the information into account when deciding whether to perform user plane integrity protection or ciphering for the DRBs that it establishes for the concerned PDU session, except if the *Split Session Indicator* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE and set to "split", in which case it shall perform user plane integrity protection or ciphering according to the information in the *Security Result* IE*.* If the S-NG-RAN node is an ng-eNB, it shall reject all PDU sessions for which the *Integrity Protection Indication* IE is set to "required" as specified in TS 33.501 [28]. If either the S-NG-RAN node or the M-NG-RAN node is an ng-eNB, the S-NG-RAN node shall behave according to clause 6.10.4 of TS 33.501 [28] for PDU sessions for which the *Integrity Protection Indication* IE is set to "preferred".

The S-NG-RAN node may include the *Location Information at S-NODE* IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message, if respective information is available at the S-NG-RAN node.

If the *Location Information at S-NODE Reporting* IE set to "pscell" is included in the S-NODE MODIFICATION REQUEST, the S-NG-RAN node shall start providing information about the current location of the UE. If the *Location Information at S-NODE* IE is included in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE, the M-NG-RAN node shall store the included information so that it may be transferred towards the AMF.

If the *S-NSSAI* IE is included in the *PDU Session Resources To Be Modified List* IE in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall replace the previously *S-NSSAI* IE by the received *S-NSSAI I*E.

If the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message contains the *MR-DC Resource Coordination Information* IE, the M-NG-RAN node may use it for the purpose of resource coordination with the S-NG-RAN node. The M-NG-RAN node shall consider the value of the received *UL Coordination Information* IE valid until reception of a new update of the IE for the same UE. The M-NG-RAN node shall consider the value of the received *DL Coordination Information* IE valid until reception of a new update of the IE for the same UE. If the *E-UTRA Coordination Assistance Information* IE or the *NR Coordination Assistance Information* IE is contained in the *MR-DC Resource Coordination Information* IE, the M-NG-RAN node shall, if supported, use the information to determine further coordination of resource utilisation between the M-NG-RAN node and the S-NG-RAN node.

If the S-NODE MODIFICATION REQUEST message contains the *PCell ID* IE, the S-NG-RAN node may search for the target cell among the neighbour cells of the PCell indicated, as specified in the TS 37.340 [8].

If the S-NG-RAN node applied a full configuration or delta configuration, e.g., as part of mobility procedure involving a change of DU, the S-NG-RAN node shall inform the M-NG-RAN node by including the *RRC config indication* IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message.

If the *Default DRB Allowed* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE or *PDU Session Resource Modification Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message and set to "true", the S-NG-RAN node may configure the default DRB for the PDU session.

If the *Default DRB Allowed* IE is included in the *PDU Session Resource Setup Info – SN terminated* IE or *PDU Session Resource Modification Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message and set to "false", the S-NG-RAN node shall not configure the default DRB for the PDU session and the S-NG-RAN shall reconfigure the default DRB into a normal DRB if it has configured the default DRB before.

If the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message includes the *DRB IDs taken into use* IE, the M-NG-RAN node, if applicable, shall act as specified in TS 37.340 [8].

If the *QoS Monitoring Request* IE is included in the *QoS Flow Level QoS Parameters* IE for a QoS flow contained in the *DRBs To Be Setup List* IE or the *DRBs To Be Modified List* IE within the *PDU Session Resource Setup Info – MN terminated* IE or the *PDU Session Resource Modification Info – MN terminated* IE, the S-NG-RAN node shall, if supported, use it to configure lower layers for the purpose of delay measurement and QoS monitoring as specified in TS 23.501 [7]. If the *QoS Monitoring Reporting Frequency* IE is included in the *QoS Flow Level QoS Parameters* IE for a QoS flow contained in the *DRBs To Be Setup List* IE or the *DRBs To Be Modified List* IE within the *PDU Session Resource Setup Info – MN terminated* IE or the *PDU Session Resource Modification Info – MN terminated* IE, the S-NG-RAN node shall, if supported, use it for RAN part delay reporting.

For each QoS flow which has been successfully added or modified in the S-NG-RAN node, if the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the *PDU Session Resource Setup Info – SN terminated* IE or the *PDU Session Resource Modification Info – SN terminated* IE, the S-NG-RAN node shall store this information, and, if supported, perform delay measurement and QoS monitoring as specified in TS 23.501 [7]. If the *QoS Monitoring Reporting Frequency* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the *PDU Session Resource Setup Info – SN terminated* IE or the *PDU Session Resource Modification Info – SN terminated* IE, the S-NG-RAN node shall store this information, and, if supported, use it for RAN part delay reporting. In case such a QoS flow is included in the *DRBs To Be Setup List* IE or the *DRBs To Be Modified List* IE within the *PDU Session Resource Setup Response Info – SN terminated* IE or the *PDU Session Resource Modification Response Info – SN terminated* IE, the M-NG-RAN node shall, if supported, use it to configure lower layers for the purpose of delay measurement and QoS monitoring. If the *QoS Monitoring Reporting Frequency* IE is included in the *DRBs To Be Setup List* IE or the *DRBs To Be Modified List* IE within the *PDU Session Resource Setup Response Info – SN terminated* IE or the *PDU Session Resource Modification Response Info – SN terminated* IE, the M-NG-RAN node shall, if supported, use it for RAN part delay reporting.

If the *PDU Session Expected UE Activity Behaviour* IE is included in the *PDU Session Resources To Be Added List* IE or the *PDU Session Resources To Be Modified List* IE of the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall, if supported, use it for the concerned PDU session as specified in TS 23.501 [7].

If the M-NG-RAN node receives in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message within the *PDU Session Resource Modification Response Info –MN terminated* IE a DRBs Admitted to be Setup or Modified Item with DRB ID(s) that it has not requested to be setup or modified, the M-NG-RAN node shall ignore the contained information.

For each DRB configured as MN-terminated split bearer/SCG bearer, if the *QoS Mapping Information* IE is included in the *DRBs Admitted List* IE in the *PDU Session Resource Setup Response Info – MN terminated* IE of the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message, the M-NG-RAN node shall, if supported, use it to set DSCP and/or flow label fields for the downlink IP packets which are transmitted from M-NG-RAN node to S-NG-RAN node through the GTP tunnels indicated by the *UP Transport Layer Information* IE.

For each DRB configured as MN-terminated split bearer/SCG bearer, if the *QoS Mapping Information* IE is included in the *DRBs Admitted to be Setup or Modified List* IE in the *PDU Session Resource Modification Response Info – MN terminated* IE of the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message, the M-NG-RAN node shall, if supported, use it to set DSCP and/or flow label fields for the downlink IP packets which are transmitted from M-NG-RAN node to S-NG-RAN node through the GTP tunnels indicated by the *UP Transport Layer Information* IE.

For each DRB configured as SN-terminated split bearer/MCG bearer, if the *QoS Mapping Information* IE is included in the *DRBs To Be Modified List* IE in the *PDU Session Resource Modification Info – SN terminated* IE of the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall, if supported, use it to set DSCP and/or flow label fields for the downlink IP packets which are transmitted from S-NG-RAN node to M-NG-RAN node through the GTP tunnels indicated by the *UP Transport Layer Information* IE.

If the *SCG Activation Request* IE is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node may use it to configure SCG resources as specified in TS 37.340 [8], and if supported, shall include the *SCG Activation Status* IE in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message.

**Interactions with the S-NG-RAN node Reconfiguration Completion procedure:**

If the S-NG-RAN node admits a modification of the UE context requiring the M-NG-RAN node to report about the success of the RRC connection reconfiguration procedure, the S-NG-RAN node shall start the timer TXnDCoverall when sending the S-NODE MODIFICATION REQUEST ACKNOWLEDGE message to the M-NG-RAN node. The reception of the S-NG-RAN node RECONFIGURATION COMPLETE message shall stop the timer TXnDCoverall.

**Interaction with the Activity Notification procedure**

Upon receiving an S-NODE MODIFICATION REQUEST message containing the *Desired Activity Notification Level* IE, the S-NG-RAN node shall, if supported, use this information to decide whether to trigger subsequent Activity Notification procedures, or stop or modify ongoing triggering of these procedures due to a previous request.

**Interaction with the Xn-U Address Indication procedure**

For QoS flow mapped to DRBs configured with an SN terminated bearer option and removed from the SDAP in the S-NG-RAN node the S-NG-RAN node may provides data forwarding related information in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE within the *Data Forwarding and offloading Info from source NG-RAN node* IE, in which case the M-NG-RAN node may decide to provide data forwarding addresses to the S-NG-RAN node and trigger the Xn-U Address Indication procedure as specified in TS 37.340 [8].

For QoS flow offloading from the S-NG-RAN node to the M-NG-RAN, the S-NG-RAN node may provide the data forwarding related information in the S-NODE MODIFICATION REQUEST ACKNOWLEDGE within the *Data Forwarding and offloading Info from source NG-RAN node* IE, in which case the M-NG-RAN node may decide to provide data forwarding addresses to the S-NG-RAN node and trigger the Xn-U Address Indication procedure as specified in TS 37.340 [8].

**Interactions with the S-NG-RAN node initiated S-NG-RAN node Modification:**

If the *SN triggered* IE set to "TRUE" is included in the S-NODE MODIFICATION REQUEST message, the S-NG-RAN node shall consider that the procedure has been initiated in response to the previously initiated S-NG-RAN node initiated S-NG-RAN node Modification procedure.

**--------------------------------------------------Next change-----------------------------------------------------**

### 8.3.4 S-NG-RAN node initiated S-NG-RAN node Modification

#### 8.3.4.1 General

This procedure is used by the S-NG-RAN node to modify the UE context in the S-NG-RAN node.

The procedure uses UE-associated signalling.

#### 8.3.4.2 Successful Operation



Figure 8.3.4.2-1: S-NG-RAN node initiated S-NG-RAN node Modification, successful operation.

The S-NG-RAN node initiates the procedure by sending the S-NODE MODIFICATION REQUIRED message to the M-NG-RAN node.

When the S-NG-RAN node sends the S-NODE MODIFICATION REQUIRED message, it shall start the timer TXnDCoverall.

The S-NODE MODIFICATION REQUIRED message may contain

- the *S-NG-RAN node to M-NG-RAN node Container* IE.

- PDU session resources to be modified within the *PDU Session Resources To Be Modified Item* IE;

- PDU session resources to be released within the *PDU Session Resources To Be Released Item* IE;

- the *PDCP Change Indication* IE;

- the Spare DRB IDs IE;

- the *Required Number of DRB IDs* IE;

- the *QoS Flow Mapping Indication* IE;

- the *MR-DC Resource Coordination Information* IE.

If the M-NG-RAN node receives a S-NODE MODIFICATION REQUIRED message containing the *PDCP Change Indication* IE, the M-NG-RAN node shall act as specified in TS 37.340 [8].

If the S-NODE MODIFICATION REQUIRED message contains the *MR-DC Resource Coordination Information* IE, the M-NG-RAN node may use it for the purpose of resource coordination with the S-NG-RAN node. The M-NG-RAN node shall consider the value of the received *UL Coordination Information* IE valid until reception of a new update of the IE for the same UE. The M-NG-RAN node shall consider the value of the received *DL Coordination Information* IE valid until reception of a new update of the IE for the same UE. If the *E-UTRA Coordination Assistance Information* IE or the *NR Coordination Assistance Information* IE is contained in the *MR-DC Resource Coordination Information* IE, the M-NG-RAN node shall, if supported, use the information to determine further coordination of resource utilisation between the M-NG-RAN node and the S-NG-RAN node.

If the M-NG-RAN node receives an S-NODE MODIFICATION REQUIRED message containing the *Spare DRB IDs* IE, the M-NG-RAN node may take those into consideration to be used for MN-terminated bearers.

If the M-NG-RAN node receives an S-NODE MODIFICATION REQUIRED message containing the *Required Number of DRB IDs* IE, the M-NG-RAN node shall provide new DRB IDs to be used by the S-NG-RAN node for SN-terminated bearers , if such DRB IDs are available, in the *Additional DRB IDs* IE included in the S-NODE MODIFICATION CONFIRM message.

If the M-NG-RAN node is able to perform the modifications requested by the S-NG-RAN node, the M-NG-RAN node shall send the S-NODE MODIFICATION CONFIRM message to the S-NG-RAN node. The S-NODE MODIFICATION CONFIRM message may contain the *M-NG-RAN node to S-NG-RAN node Container* IE.

If the *PDCP Duplication Configuration* IE in the *PDU Session Resource Modification Required Info – SN terminated* IE is contained in the S-NODE MODIFICATION REQUIRED message and set to "configured", the M-NG-RAN node shall, if supported, add the RLC entity of secondary path and the RLC entity of all additional path(s) for the indicated DRB. And if the S-NODE MODIFICATION REQUIRED message contains the *Duplication Activation* IE, the M-NG-RAN node shall, if supported, store this information and use it for the purpose of PDCP duplication.

If the S-NODE MODIFICATION REQUIRED message contains the *RLC Duplication Information* IE, the S-NG-RAN node shall, if supported, store this information and use it for the purpose of PDCP duplication for the indicated DRB with more than two RLC entities.

If the *PDCP Duplication Configuration* IE in the *PDU Session Resource Modification Required Info – SN terminated* IE is contained in the S-NODE MODIFICATION REQUIRED message and set to "de-configured", the M-NG-RAN node shall, if supported, delete the RLC entity of secondary path and the RLC entity of all additional path(s) for the indicated DRB.

The S-NG-RAN node may include for each DRB in the *DRBs To Be Modified List* IE in the S-NODE MODIFICATION REQUIRED message the *RLC Status* IE to indicate that RLC has been reestablished at the S-NG-RAN node and the M-NG-RAN node may trigger PDCP data recovery.

If the S-NODE MODIFICATION REQUIRED message contains the *QoS flows To Be Released List* within the *PDU Session Resource Modification Info – SN terminated* IE, the S-NG-RAN node may also propose to apply forwarding of UL data for which in-order delivery is requested by including the *UL Forwarding* *Proposal* IE in the *Data Forwarding and Offloading Info from source NG-RAN node* IE within the *PDU Session Resource Modification Required Info – SN terminated* IE of the S-NODE MODIFICATION REQUIRED message. The M-NG-RAN node may include the *PDU Session Level UL Data Forwarding UP TNL Information* IE in the *Data Forwarding Info from target NG-RAN node* IE within the *PDU Session Resource Modification Confirm Info – SN terminated* IE of the S-NODE MODIFICATION CONFIRM message to indicate that it accepts the proposed forwarding.

Upon reception of the S-NODE MODIFICATION CONFIRM message the S-NG-RAN node shall stop the timer TXnDCoverall.

If the S-NODE MODIFICATION CONFIRM message contains the *MR-DC Resource Coordination Information* IE, the S-NG-RAN node should forward it to lower layers and it may use it for the purpose of resource coordination with the M-NG-RAN node, or to coordinate with sidelink resources used in the M-NG-RAN node. The S-NG-RAN node shall consider the value of the received *UL Coordination Information* IE valid until reception of a new update of the IE for the same UE. The S-NG-RAN node shall consider the value of the received *DL Coordination Information* IE valid until reception of a new update of the IE for the same UE. If the *E-UTRA Coordination Assistance Information* IE or the *NR Coordination Assistance Information* IE is contained in the *MR-DC Resource Coordination Information* IE, the S-NG-RAN node shall, if supported, use the information to determine further coordination of resource utilisation between the S-NG-RAN node and the M-NG-RAN node.

If the S-NODE MODIFICATION REQUIRED message contains a PDU session resource to be released which is configured with the SCG bearer option within the *PDU sessions to be released List – SN terminated* IE, the S-NG-RAN node shall include the *RLC Mode* IE within the *DRBs To Be Released List* IE in the *PDU Session to be released List – SN terminated* IE in the S-NODE MODIFICATION REQUIRED message. The *RLC Mode* IE indicates the RLC mode used in the S-NG-RAN node for the DRB.

If the *Location Information at S-NODE* IE is included in the S-NODE MODIFICATION REQUIRED, the M-NG-RAN node shall store the included information so that it may be transferred towards the AMF.

If the *QoS Flows Mapped To DRB List* IE is included in the S-NODE MODIFICATION REQUIRED message for a DRB to be modified, the M-NG-RAN node shall replace any existing QoS flow mapping for that DRB with the one received.

If the S-NG-RAN node applied a full configuration or delta configuration, e.g., as part of mobility procedure involving a change of DU, the S-NG-RAN node shall inform the M-NG-RAN node by including the *RRC config indication* IE in the S-NODE MODIFICATION REQUIRED message.

If the S-NODE MODIFICATION CONFIRM message includes the *DRB IDs taken into use* IE, the S-NG-RAN node shall, if applicable, act as specified in TS 37.340 [8]

If the *SCG Indicator* IE is contained in the S-NODE MODIFICATION REQUIRED message and it is set to "released", the M-NG-RAN node shall, if supported, deduce that the SCG is removed.

For each DRB configured as MN-terminated split bearer/SCG bearer, if the *QoS Mapping Information* IE is included in the *DRBs To Be Modified List* IE in the *PDU Session Resource Modification Required Info – MN terminated* IE of the S-NODE MODIFICATION REQUIRED message, the M-NG-RAN node shall, if supported, use it to set DSCP and/or flow label fields for the downlink IP packets which are transmitted from M-NG-RAN node to S-NG-RAN node through the GTP tunnels indicated by the *UP Transport Layer Information* IE.

For each DRB configured as SN-terminated split bearer/MCG bearer, if the *QoS Mapping Information* IE is included in the *DRBs Admitted to be Setup or Modified List* IE in the *PDU Session Resource Modification Confirm Info – SN terminated* IE of the S-NODE MODIFICATION CONFIRM message, the S-NG-RAN node shall, if supported, use it to set DSCP and/or flow label fields for the downlink IP packets which are transmitted from S-NG-RAN node to M-NG-RAN node through the GTP tunnels indicated by the *UP Transport Layer Information* IE.

If the *SCG Activation Request* IE is included in the S-NODE MODIFICATION REQUIRED message, the M-NG-RAN node shall consider that the S-NG-RAN node is about to reconfigure the SCG resources as specified in TS 37.340 [8].

**Interaction with the S-NG-RAN node Addition Preparation procedure:**

If the *SCG Activation Request* IE was included in the S-NODE ADDITION REQUEST message, the S-NG-RAN node may use the *SCG Activation Request* IE in the S-NG-RAN node initiated S-NG-RAN node Modification procedure.

**Interaction with the M-NG-RAN node initiated S-NG-RAN node Modification Preparation procedure:**

If applicable, as specified in TS 37.340 [8], the S-NG-RAN node may receive, after having initiated the S-NG-RAN node initiated S-NG-RAN node Modification procedure, the S-NODE MODIFICATION REQUEST message including the *measGapConfig* IE as defined in TS 38.331 [10] within the *M-NG-RAN node to S-NG-RAN node Container* IE.

If applicable, the S-NG-RAN node may receive, after having initiated the S-NG-RAN node initiated S-NG-RAN node Modification procedure, the S-NODE MODIFICATION REQUEST message including the *SN triggered* IE.

#### 8.3.4.3 Unsuccessful Operation



Figure 8.3.4.3-1: S-NG-RAN node initiated S-NG-RAN node Modification, unsuccessful operation.

In case the requested modification cannot be performed successfully the M-NG-RAN node shall respond with the S-NODE MODIFICATION REFUSE message to the S-NG-RAN node with an appropriate cause value in the *Cause* IE.

In case that the *Required Number of DRB IDs* IE was included in the S-NODE MODIFICATION REQUIRED message and if the M-NG-RAN node is not able to provide additional DRB IDs, the M-NG-RAN node shall respond with the S-NODE MODIFICATION REFUSE with an appropriate cause value in the Cause IE.

The M-NG-RAN node may also provide configuration information in the *M-NG-RAN node to S-NG-RAN node Container* IE.

**--------------------------------------------------Next change-----------------------------------------------------**

#### 9.1.2.1 S-NODE ADDITION REQUEST

This message is sent by the M-NG-RAN node to the S-NG-RAN node to request the preparation of resources for dual connectivity operation for a specific UE.

Direction: M-NG-RAN node → S-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| UE Security Capabilities | M |  | 9.2.3.49 |  | YES | reject |
| S-NG-RAN node Security Key | M |  | 9.2.3.51 |  | YES | reject |
| S-NG-RAN node UE Aggregate Maximum Bit Rate | M |  | UE Aggregate Maximum Bit Rate9.2.3.17 | The UE Aggregate Maximum Bit Rate is split into M-NG-RAN node UE Aggregate Maximum Bit Rate and S-NG-RAN node UE Aggregate Maximum Bit Rate which are enforced by M-NG-RAN node and S-NG-RAN node respectively. | YES | reject |
| Selected PLMN | O |  | PLMN Identity9.2.2.4 | The selected PLMN of the SCG in the S-NG-RAN node. | YES | ignore |
| Mobility Restriction List | O |  | 9.2.3.53 |  | YES | ignore |
| Index to RAT/Frequency Selection Priority | O |  | 9.2.3.23 |  | YES | reject |
| **PDU Session Resources To Be Added List** |  | *1* |  |  | YES | reject |
| **>PDU Session Resources To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Info – SN terminated* IE nor the*PDU Session Resource Setup Info – MN terminated* IEis present in a *PDU Session Resources To Be Added Item* IE, abnormal conditions as specified in clause 8.3.1.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>S-NSSAI | M |  | 9.2.3.21 |  | – |  |
| >>S-NG-RAN node PDU Session Aggregate Maximum Bit Rate | O |  | PDU Session Aggregate Maximum Bit Rate9.2.3.69 |  | – |  |
| >>PDU Session Resource Setup Info – SN terminated | O |  | 9.2.1.5 |  | – |  |
| >>PDU Session Resource Setup Info – MN terminated | O |  | 9.2.1.7 |  | – |  |
| M-NG-RAN node to S-NG-RAN node Container | M |  | OCTET STRING | Includes the *CG-ConfigInfo* message as defined in subclause 11.2.2 of TS 38.331 [10] | YES | reject |
| S-NG-RAN node UE XnAP ID | O |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| Expected UE Behaviour | O |  | 9.2.3.81 |  | YES | ignore |
| Requested Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates that resources for Split SRBs are requested. | YES | reject |
| PCell ID | O |  | Global NG-RAN Cell Identity9.2.2.27 |  | YES | reject |
| Desired Activity Notification Level | O |  | 9.2.3.77 |  | YES | ignore |
| Available DRB IDs | C-ifSNterminated |  | DRB List9.2.1.29 | Indicates the list of DRB IDs that the S-NG-RAN node may use for SN-terminated bearers. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Uplink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Uplink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Uplink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. If the *S-NG-RAN node Maximum Integrity Protected Data Rate Downlink* IE is not present, this IE applies to both UL and DL. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Downlink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Downlink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Downlink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. | YES | reject |
| Location Information at S-NODE reporting | O |  | ENUMERATED (pscell, ...) | Indicates that the user’s Location Information at S-NODE is to be provided. | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| Masked IMEISV | O |  | 9.2.3.32 |  | YES | ignore |
| NE-DC TDM Pattern | O |  | 9.2.2.38 |  | YES | ignore |
| SN Addition Trigger Indication | O |  | ENUMERATED (SN change, inter-MN HO, intra-MN HO, ...) | This IE indicates the trigger for S-NG-RAN node Addition Preparation procedure | YES | reject |
| Trace Activation | O |  | 9.2.3.55 |  | YES | ignore |
| Requested Fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates that the resources for fast MCG recovery via SRB3 are requested. | YES | ignore |
| UE Radio Capability ID | O |  | 9.2.3.138 |  | YES | reject |
| SCG Activation Request | O |  | 9.2.3.xxx |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifSNterminated | This IE shall be present if there is at least one *PDU Session Resource Setup Info – SN terminated* in the *PDU Session Resources To Be Added List* IE. |

9.1.2.2 S-NODE ADDITION REQUEST ACKNOWLEDGE

This message is sent by the S-NG-RAN node to confirm the M-NG-RAN node about the S-NG-RAN node addition preparation.

Direction: S-NG-RAN node → M-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| **PDU Session Resources Admitted To Be Added List** |  | *1* |  |  | YES | ignore |
| **>PDU Session Resources Admitted To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Response Info – SN terminated* IE nor the*PDU Session Resource Setup Response Info – MN terminated* IEis present in a *PDU Session Resources Admitted to be Added Item* IE, abnormal conditions as specified in clause 8.3.1.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>PDU Session Resource Setup Response Info – SN terminated | O |  | 9.2.1.6 |  | – |  |
| >>PDU Session Resource Setup Response Info – MN terminated | O |  | 9.2.1.8 |  | – |  |
| **PDU Session Resources Not Admitted List** | O |  |  |  | YES | ignore |
| >PDU Session Resources Not Admitted List – SN terminated | O |  | PDU Session Resources Not Admitted List9.2.1.3 |  | – |  |
| >PDU Session Resources Not Admitted List – MN terminated | O |  | PDU Session Resources Not Admitted List9.2.1.3 |  | – |  |
| S-NG-RAN node to M-NG-RAN node Container | M |  | OCTET STRING | Includes the *CG-Config* message as defined in subclause 11.2.2 of TS 38.331 [10]. | YES | reject |
| Admitted Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates admitted SRBs | YES | reject |
| RRC Config Indication | O |  | 9.2.3.72 |  | YES | reject |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| Location Information at S-NODE | O |  | Target Cell Global ID9.2.3.25 | Contains information to support localisation of the UE | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| Available fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates the fast MCG recovery via SRB3 isenabled. | YES | ignore |
| SCG Activation Status | O |  | 9.2.3.xxy |  | YES | ignore |

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| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

#### 9.1.2.5 S-NODE MODIFICATION REQUEST

This message is sent by the M-NG-RAN node to the S-NG-RAN node to either request the preparation to modify S-NG-RAN node resources for a specific UE, or to query for the current SCG configuration, or to provide the S-RLF-related information to the S-NG-RAN node.

Direction: M-NG-RAN node → S-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID 9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| Cause | M |  | 9.2.3.2 |  | YES | ignore |
| PDCP Change Indication | O |  | 9.2.3.74 |  | YES | ignore |
| Selected PLMN | O |  | PLMN Identity9.2.2.4 | The selected PLMN of the SCG in the S-NG-RAN node. | YES | ignore |
| Mobility Restriction List | O |  | 9.2.3.53 |  | YES | ignore |
| SCG Configuration Query | O |  | 9.2.3.27 |  | YES | ignore |
| **UE Context Information** |  | *0..1* |  |  | YES | reject |
| >UE Security Capabilities | O |  | 9.2.3.49 |  | – |  |
| >S-NG-RAN node Security Key | O |  | 9.2.3.51 |  | – |  |
| >S-NG-RAN node UE Aggregate Maximum Bit Rate | O |  | UE Aggregate Maximum Bit Rate9.2.3.17 |  | – |  |
| >Index to RAT/Frequency Selection Priority | O |  | 9.2.3.23 |  | – |  |
| >Lower Layer presence status change | O |  | 9.2.3.60 |  | – |  |
| **>PDU Session Resources To Be Added List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Info – SN terminated* IE nor the*PDU Session Resource Setup Info – MN terminated* IEis present in a *PDU Session Resources To Be Added Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>S-NSSAI | M |  | 9.2.3.21 |  | – |  |
| >>>S-NG-RAN node PDU Session Aggregate Maximum Bit Rate | O |  | PDU Session Aggregate Maximum Bit Rate9.2.3.69 |  | – |  |
| >>>PDU Session Resource Setup Info – SN terminated | O |  | 9.2.1.5 |  | – |  |
| >>>PDU Session Resource Setup Info – MN terminated | O |  | 9.2.1.7 |  | – |  |
| >>>PDU Session Expected UE Activity Behaviour | O |  | Expected UE Activity Behaviour9.2.3.82 | Expected UE Activity Behaviour for the PDU Session. | YES | ignore |
| **>PDU Session Resources To Be Modified List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources To Be Modified Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Modification Info – SN terminated* IE nor the*PDU Session Resource Modification Info – MN terminated* IEis present in a *PDU Session Resources To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>S-NG-RAN node PDU Session Aggregate Maximum Bit Rate | O |  | PDU Session Aggregate Maximum Bit Rate9.2.3.69 |  | – |  |
| >>>PDU Session Resource Modification Info – SN terminated | O |  | 9.2.1.9 |  | – |  |
| >>>PDU Session Resource Modification Info – MN terminated | O |  | 9.2.1.11 |  | – |  |
| >>>S-NSSAI | O |  | 9.2.3.21 |  | YES | reject |
| >>>PDU Session Expected UE Activity Behaviour | O |  | Expected UE Activity Behaviour9.2.3.82 | Expected UE Activity Behaviour for the PDU Session. | YES | ignore |
| >PDU Session Resources To Be Released List | O |  | PDU session List with Cause9.2.1.26 |  | – |  |
| M-NG-RAN node to S-NG-RAN node Container | O |  | OCTET STRING | Includes the *CG-ConfigInfo* message as defined in subclause 11.2.2. of TS 38.331 [10]. | YES | ignore |
| Requested Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates that resources for Split SRBs are requested. | YES | ignore |
| Requested Split SRBs release | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates that resources for Split SRBs are requested to be released. | YES | ignore |
| Desired Activity Notification Level | O |  | 9.2.3.77 |  | YES | ignore |
| Additional DRB IDs | O |  | DRB List9.2.1.29 | Indicates additional list of DRB IDs that the S-NG-RAN node may use for SN-terminated bearers. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Uplink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Uplink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Uplink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. If the *S-NG-RAN node Maximum Integrity Protected Data Rate Downlink* IE is not present, this IE applies to both UL and DL. | YES | reject |
| S-NG-RAN node Maximum Integrity Protected Data Rate Downlink | O |  | Bit Rate9.2.3.4 | The S-NG-RAN node Maximum Integrity Protected Data Rate Downlink is a portion of the UE’s Maximum Integrity Protected Data Rate in the Downlink, which is enforced by the S-NG-RAN node for the UE’s SN terminated PDU sessions. | YES | reject |
| Location Information at S-NODE reporting | O |  | ENUMERATED (pscell, ...) | Indicates that the user’s Location Information at S-NODE is to be provided. | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | ignore |
| PCell ID | O |  | Global NG-RAN Cell Identity9.2.2.27 |  | YES | reject |
| NE-DC TDM Pattern | O |  | 9.2.2.38 |  | YES | ignore |
| Requested Fast MCG recovery via SRB3 | O |  | ENUMERATED (true, ...) | Indicates that the resources for fast MCG recovery via SRB3 are requested. | YES | ignore |
| Requested Fast MCG recovery via SRB3 Release | O |  | ENUMERATED (true, ...) | Indicates that resources for fast MCG recovery via SRB3 are requested to be released. | YES | ignore |
| SN triggered | O |  | ENUMERATED (TRUE ...) |  | YES | ignore |
| SCG Activation Request | O |  | 9.2.3.xxx |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

#### 9.1.2.6 S-NODE MODIFICATION REQUEST ACKNOWLEDGE

This message is sent by the S-NG-RAN node to confirm the M-NG-RAN node’s request to modify the S-NG-RAN node resources for a specific UE.

Direction: S-NG-RAN node → M-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | ignore |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | ignore |
| **PDU Session Resources Admitted List** |  | *0..1* |  |  | YES | ignore |
| **>PDU Session Resources Admitted To Be Added List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources Admitted To Be Added Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Setup Response Info – SN terminated* IE nor the*PDU Session Resource Setup Response Info – MN terminated* IEis present in a *PDU Session Resources Admitted To Be Added Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>PDU Session Resource Setup Response Info – SN terminated | O |  | 9.2.1.6 |  | – |  |
| >>>PDU Session Resource Setup Response Info – MN terminated | O |  | 9.2.1.8 |  | – |  |
| **>PDU Session Resources Admitted To Be Modified List** |  | *0..1* |  |  | – |  |
| **>>PDU Session Resources Admitted To Be Modified Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Modification Response Info – SN terminated* IE nor the*PDU Session Resource Modification Response Info – MN terminated* IEis present in a *PDU Session Resources Admitted To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.3.4 apply. | – |  |
| >>>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>>PDU Session Resource Modification Response Info – SN terminated | O |  | 9.2.1.10 |  | – |  |
| >>>PDU Session Resource Modification Response Info – MN terminated | O |  | 9.2.1.12 |  | – |  |
| **>PDU Session Resources Admitted To Be Released List** |  | *0..1* |  |  | – |  |
| >>PDU Session Resources admitted to be released List – SN terminated | O |  | PDU session List with data forwarding request info9.2.1.24 |  | – |  |
| >>PDU Session Resources admitted to be released List – MN terminated | O |  | PDU session List with data Cause9.2.1.26 |  | – |  |
| **PDU Session Resources Not Admitted to be Added List** | O |  | PDU session List9.2.1.27 |  | YES | ignore |
| S-NG-RAN node to M-NG-RAN node Container | O |  | OCTET STRING | Includes the *CG-Config* message as defined in subclause 11.2.2 of TS 38.331 [10]. | YES | ignore |
| Admitted Split SRBs | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates admitted SRBs | YES | ignore |
| Admitted Split SRBs release | O |  | ENUMERATED (srb1, srb2, srb1&2, ...) | Indicates admitted SRBs release | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| Location Information at S-NODE | O |  | Target Cell Global ID9.2.3.25 | Contains information to support localisation of the UE | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | Ignore |
| **PDU Session Resources with Data Forwarding List** |  | *0..1* |  |  | YES | ignore |
| **>**PDU Session Resources with Data Forwarding List – SN terminated | M |  | PDU session List with data forwarding request info9.2.1.24 |  | – |  |
| RRC Config Indication | O |  | 9.2.3.72 |  | YES | reject |
| Available fast MCG recovery via SRB3 | O |  | ENUMERATED {true, ...} | Indicates the fast MCG recovery via SRB3 isenabled. | YES | ignore |
| Release fast MCG recovery via SRB3 | O |  | ENUMERATED {true, ...} | Indicates the fast MCG recovery via SRB3 is released. | YES | ignore |
| SCG Activation Status | O |  | 9.2.3.xxy |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

**--------------------------------------------------Next change-----------------------------------------------------**

#### 9.1.2.8 S-NODE MODIFICATION REQUIRED

This message is sent by the S-NG-RAN node to the M-NG-RAN node to request the modification of S-NG-RAN node resources for a specific UE.

Direction: S-NG-RAN node → M-NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| M-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the M-NG-RAN node | YES | reject |
| S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the S-NG-RAN node | YES | reject |
| Cause | M |  | 9.2.3.2 |  | YES | ignore |
| PDCP Change Indication | O |  | 9.2.3.74 |  | YES | ignore |
| **PDU Session Resources To Be Modified List** |  | *0..1* |  |  | YES | ignore |
| **>PDU Session Resources To Be Modified Item** |  | *1 .. <maxnoofPDUSessions>* |  | NOTE: If neither the *PDU Session Resource Modification Required Info – SN terminated* IE nor the*PDU Session Resource Modification Required Info – MN terminated* IEis present in a *PDU Session Resources To Be Modified Item* IE, abnormal conditions as specified in clause 8.3.4.4 apply. | – |  |
| >>PDU Session ID | M |  | 9.2.3.18 |  | – |  |
| >>PDU Session Resource Modification Required Info – SN terminated | O |  | 9.2.1.20 |  | – |  |
| >>PDU Session Resource Modification Required Info – MN terminated | O |  | 9.2.1.22 |  | – |  |
| **PDU Session Resources To Be Released List** |  | *0..1* |  |  | YES | ignore |
| **>PDU Session Resources To Be Released Item** |  | *1 .. <maxnoofPDUSessions>* |  |  | – |  |
| >PDU sessions to be released List – SN terminated | O |  | PDU session List with data forwarding request info9.2.1.24 |  | – |  |
| >PDU sessions to be released List – MN terminated | O |  | PDU session List with Cause9.2.1.26 |  | – |  |
| S-NG-RAN node to M-NG-RAN node Container | O |  | OCTET STRING | Includes the *CG-Config* message as defined in subclause 11.2.2 of TS 38.331 [10]. | YES | ignore |
| Spare DRB IDs | O |  | DRB List9.2.1.29 | Indicates the list of unnecessary DRB IDs that had been used by the S-NG-RAN node. | YES | ignore |
| Required Number of DRB IDs | O |  | Number of DRBs9.2.3.78 | Indicates the number of DRB IDs that the S-NG-RAN node requests more. | YES | ignore |
| Location Information at S-NODE | O |  | Target Cell Global ID9.2.3.25 | Contains information to support localisation of the UE | YES | ignore |
| MR-DC Resource Coordination Information | O |  | 9.2.2.33 | Information used to coordinate resource utilisation between M-NG-RAN node and S-NG-RAN node.  | YES | Ignore |
| RRC Config Indication | O |  | 9.2.3.72 |  | YES | reject |
| SCG Indicator | O |  | ENUMERATED(released,...) |  | YES | ignore |
| SCG Activation Request | O |  | 9.2.3.xxx |  | YES | ignore |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofPDUSessions | Maximum no. of PDU sessions. Value is 256 |

**--------------------------------------------------Next change-----------------------------------------------------**

#### 9.2.3.2 Cause

The purpose of the *Cause* IE is to indicate the reason for a particular event for the XnAP protocol.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| CHOICE *Cause Group* | M |  |  |  |
| >*Radio Network Layer* |  |  |  |  |
| >>Radio Network Layer Cause  | M |  | ENUMERATED(Cell not Available,Handover Desirable for Radio Reasons,Handover Target not Allowed,Invalid AMF Set ID,No Radio Resources Available in Target Cell,Partial Handover,Reduce Load in Serving Cell,Resource Optimisation Handover,Time Critical Handover,TXnRELOCoverall Expiry,TXnRELOCprep Expiry,Unknown GUAMI ID,Unknown Local NG-RAN node UE XnAP ID,Inconsistent Remote NG-RAN node UE XnAP ID,Encryption And/Or Integrity Protection Algorithms Not Supported,Protection Algorithms Not Supported,Multiple PDU Session ID Instances,Unknown PDU Session ID,Unknown QoS Flow ID,Multiple QoS Flow ID Instances,Switch Off Ongoing,Not supported 5QI value,TXnDCoverall Expiry,TXnDCprep Expiry,Action Desirable for Radio Reasons,Reduce Load,Resource Optimisation,Time Critical action,Target not Allowed,No Radio Resources Available,Invalid QoS combination,Encryption Algorithms Not Supported,Procedure cancelled,RRM purpose,Improve User Bit Rate,User Inactivity,Radio Connection With UE Lost,Failure in the Radio Interface Procedure,Bearer Option not Supported,UP integrity protection not possible, UP confidentiality protection not possible,Resources not available for the slice(s),UE Maximum integrity protected data rate reason,CP Integrity Protection Failure,UP Integrity Protection Failure,Slice(s) not supported by NG-RAN,MN Mobility,SN Mobility,Count reaches max value,Unknown Old NG-RAN node UE XnAP ID,PDCP Overload,DRB ID not available,Unspecified,…,UE Context ID not known, Non-relocation of context, CHO-CPC resources to be changed,RSN not available for the UP,NPN access denied,Report Characteristics Empty, Existing Measurement ID, Measurement Temporarily not Available,Measurement not Supported For The Object,UE Power Saving,Not existing NG-RAN node2 Measurement ID, Insufficient UE Capabilities, Normal Release, SCG activation deactivation failure, SCG deactivation failure due to data transmission) |  |
| *>Transport Layer* |  |  |  |  |
| >>Transport Layer Cause | M |  | ENUMERATED(Transport Resource Unavailable,Unspecified,…) |  |
| *>Protocol* |  |  |  |  |
| >>Protocol Cause | M |  | ENUMERATED(Transfer Syntax Error,Abstract Syntax Error (Reject),Abstract Syntax Error (Ignore and Notify),Message not Compatible with Receiver State,Semantic Error,Abstract Syntax Error (Falsely Constructed Message), Unspecified, …) |  |
| *>Misc* |  |  |  |  |
| >>Miscellaneous Cause | M |  | ENUMERATED(Control Processing Overload,Hardware Failure,O&M Intervention,Not enough User Plane Processing Resources,Unspecified, …) |  |

The meaning of the different cause values is specified in the following table. In general, "not supported" cause values indicate that the related capability is missing. On the other hand, "not available" cause values indicate that the related capability is present, but insufficient resources were available to perform the requested action.

|  |  |
| --- | --- |
| Radio Network Layer cause | Meaning |
| Cell not Available | The concerned cell is not available. |
| Handover Desirable for Radio Reasons | The reason for requesting handover is radio related. |
| Handover Target not Allowed | Handover to the indicated target cell is not allowed for the UE in question. |
| Invalid AMF Set ID | The target NG-RAN node doesn’t belong to the same AMF Set of the source NG-RAN node, i.e. NG handovers should be attempted instead. |
| No Radio Resources Available in Target Cell | The target cell doesn’t have sufficient radio resources available. |
| Partial Handover | Provides a reason for the handover cancellation. The target NG-RAN node did not admit all PDU Sessions included in the HANDOVER REQUEST and the source NG-RAN node estimated service continuity for the UE would be better by not proceeding with handover towards this particular target NG-RAN node. |
| Reduce Load in Serving Cell | Load in serving cell needs to be reduced. When applied to handover preparation, it indicates the handover is triggered due to load balancing. |
| Resource Optimisation Handover | The reason for requesting handover is to improve the load distribution with the neighbour cells. |
| Time Critical Handover | Handover is requested for time critical reason i.e. this cause value is reserved to represent all critical cases where the connection is likely to be dropped if handover is not performed. |
| TXnRELOCoverall Expiry | The reason for the action is expiry of timer TXnRELOCoverall. |
| TXnRELOCprep Expiry | Handover Preparation procedure is cancelled when timer TXnRELOCprep expires. |
| Unknown GUAMI ID | The target NG-RAN node belongs to the same AMF Set of the source NG-RAN node and recognizes the AMF Set ID. However, the GUAMI value is unknown to the target NG-RAN node. |
| Unknown Local NG-RAN node UE XnAP ID  | The action failed because the receiving NG-RAN node does not recognise the local NG-RAN node UE XnAP ID. |
| Inconsistent Remote NG-RAN node UE XnAP ID | The action failed because the receiving NG-RAN node considers that the received remote NG-RAN node UE XnAP ID is inconsistent.. |
| Encryption And/Or Integrity Protection Algorithms Not Supported | The target NG-RAN node is unable to support any of the encryption and/or integrity protection algorithms supported by the UE. |
| Multiple PDU Session ID Instances | The action failed because multiple instances of the same PDU Session had been provided to the NG-RAN node. |
| Unknown PDU Session ID | The action failed because the PDU Session ID is unknown in the NG-RAN node. |
| Unknown QoS Flow ID | The action failed because the QoS Flow ID is unknown in the NG-RAN node. |
| Multiple QoS Flow ID Instances | The action failed because multiple instances of the same QoS flow had been provided to the NG-RAN node. |
| Switch Off Ongoing | The reason for the action is an ongoing switch off i.e. the concerned cell will be switched off after offloading and not be available. It aides the receiving NG-RAN node in taking subsequent actions, e.g. selecting the target cell for subsequent handovers.  |
| Not supported 5QI value | The action failed because the requested 5QI is not supported. |
| TXnDCoverall Expiry | The reason for the action is expiry of timer TXnDCoverall. |
| TXnDCprep Expiry | The reason for the action is expiry of timer TXnDCprep |
| Action Desirable for Radio Reasons | The reason for requesting the action is radio related.In the current version of this specification applicable for Dual Connectivity only. |
| Reduce Load | Load in the cell(group) served by the requesting node needs to be reduced.In the current version of this specification applicable for Dual Connectivity only. |
| Resource Optimisation | The reason for requesting this action is to improve the load distribution with the neighbour cells.In the current version of this specification applicable for Dual Connectivity only. |
| Time Critical action | The action is requested for time critical reason i.e. this cause value is reserved to represent all critical cases where radio resources are likely to be dropped if the requested action is not performed.In the current version of this specification applicable for Dual Connectivity only. |
| Target not Allowed | Requested action towards the indicated target cell is not allowed for the UE in question.In the current version of this specification applicable for Dual Connectivity only. |
| No Radio Resources Available | The cell(s) in the requested node don’t have sufficient radio resources available.In the current version of this specification applicable for Dual Connectivity only. |
| Invalid QoS combination | The action was failed because of invalid QoS combination.In the current version of this specification applicable for Dual Connectivity only. |
| Encryption Algorithms Not Supported | The requested NG-RAN node is unable to support any of the encryption algorithms supported by the UE.In the current version of this specification applicable for Dual Connectivity only. |
| Procedure cancelled | The sending node cancelled the procedure due to other urgent actions to be performed.In the current version of this specification applicable for Dual Connectivity only. |
| RRM purpose | The procedure is initiated due to node internal RRM purposes.In the current version of this specification applicable for Dual Connectivity only. |
| Improve User Bit Rate | The reason for requesting this action is to improve the user bit rate.In the current version of this specification applicable for Dual Connectivity only. |
| User Inactivity | The action is requested due to user inactivity on all PDU Sessions. The action may be performed on several levels: - on UE Context level, if NG is requested to be released in order to optimise the radio resources; or S-NG-RAN node didn’t see activity on the PDU session recently.- on PDU Session Resource or DRB or QoS flow level, e.g. if Activity Notification indicate lack of activityIn the current version of this specification applicable for Dual Connectivity only. |
| Radio Connection With UE Lost | The action is requested due to losing the radio connection to the UE.In the current version of this specification applicable for Dual Connectivity only. |
| Failure in the Radio Interface Procedure | Radio interface procedure has failed.In the current version of this specification applicable for Dual Connectivity only. |
| Bearer Option not Supported | The requested bearer option is not supported by the sending node.In the current version of this specification applicable for Dual Connectivity only. |
| UP integrity protection not possible | The PDU session cannot be accepted according to the required user plane integrity protection policy. |
| UP confidentiality protection not possible | The PDU session cannot be accepted according to the required user plane confidentiality protection policy. |
| Resources not available for the slice(s) | The requested resources are not available for the slice(s). |
| UE Maximum integrity protected data rate reason | The request is not accepted in order to comply with the maximum data rate for integrity protection supported by the UE. |
| CP Integrity Protection Failure | The request is not accepted due to failed control plane integrity protection.  |
| UP Integrity Protection Failure | The procedure is initiated because the SN (hosting node) detected an Integrity Protection failure in the UL PDU coming from the MN.  |
| Slice(s) not supported by NG-RAN | The failure is due to slice(s) not supported by the NG-RAN node. |
| MN Mobility | The procedure is initiated due to relocation of the M-NG-RAN node UE context. |
| SN Mobility | The procedure is initiated due to relocation of the S-NG-RAN node UE context. |
| Count reaches max value, | Indicates the PDCP COUNT for UL or DL reached the max value and the bearer may be released. |
| Unknown Old NG-RAN node UE XnAP ID | The action failed because the Old NG-RAN node UE XnAP ID or the S-NG-RAN node UE XnAP ID is unknown.  |
| PDCP Overload | The procedure is initiated due to PDCP resource limitation. |
| DRB ID not available | The action failed because the M-NG-RAN node is not able to provide additional DRB IDs to the S-NG-RAN node. |
| Unspecified | Sent for radio network layer cause when none of the specified cause values applies. |
| UE Context ID not known | The context retrieval procedure cannot be performed because the UE context cannot be identified. |
| Non-relocation of context | The context retrieval procedure is not performed because the old RAN node has decided not to relocate the UE context. |
| CHO-CPC resources to be changed | The prepared resources for CHO or CPC for a UE are to be changed. |
| RSN not available for the UP | The redundant user plane resources are not available. |
| NPN Access denied | Access denied, or release is required, due to NPN reasons. |
| Report Characteristics Empty | The action failed because there is no measurement object in the report characteristics. |
| Existing Measurement ID | The action failed because the measurement ID is already used. |
| Measurement Temporarily not Available | The NG-RAN node can temporarily not provide the requested measurement object. |
| Measurement not Supported For The Object | At least one of the concerned object(s) does not support the requested measurement. |
| Report Characteristics Empty | The action failed because there is no measurement object in the report characteristics. |
| UE Power Saving | The procedure is initiated to accommodate the preference indicated by UE to release the S-NG-RAN node for UE power saving purpose. |
| Not existing NG-RAN node2 Measurement ID | The action failed because the NG-RAN node2 Measurement ID is not used. |
| Insufficient UE Capabilities | The procedure can’t proceed due to insufficient UE capabilities. |
| Normal Release | The release is due to normal reasons. |
| SCG activation deactivation failure | The action failed due to rejection of the SCG activation deactivation request. |
| SCG deactivation failure due to data transmission | The SCG deactivation failure due to ongoing or arriving data transmission. |

|  |  |
| --- | --- |
| Transport Layer cause | Meaning |
| Transport resource unavailable | The required transport resources are not available. |
| Unspecified | Sent when none of the above cause values applies but still the cause is Transport Network Layer related. |

|  |  |
| --- | --- |
| NAS cause | Meaning |
| Unspecified | Sent when none of the above cause values applies but still the cause is NAS related. |

|  |  |
| --- | --- |
| Protocol cause | Meaning |
| Transfer Syntax Error | The received message included a transfer syntax error. |
| Abstract Syntax Error (Reject) | The received message included an abstract syntax error and the concerning criticality indicated "reject". |
| Abstract Syntax Error (Ignore And Notify) | The received message included an abstract syntax error and the concerning criticality indicated "ignore and notify". |
| Message Not Compatible With Receiver State | The received message was not compatible with the receiver state. |
| Semantic Error | The received message included a semantic error. |
| Abstract Syntax Error (Falsely Constructed Message) | The received message contained IEs or IE groups in wrong order or with too many occurrences. |
| Unspecified | Sent when none of the above cause values applies but still the cause is Protocol related. |

|  |  |
| --- | --- |
| Miscellaneous cause | Meaning |
| Control Processing Overload | NG-RAN node control processing overload. |
| Hardware Failure | NG-RAN node hardware failure. |
| Not enough User Plane Processing Resources | NG-RAN node has insufficient user plane processing resources available. |
| O&M Intervention | Operation and Maintenance intervention related to NG-RAN node equipment. |
| Unspecified | Sent when none of the above cause values applies and the cause is not related to any of the categories Radio Network Layer, Transport Network Layer or Protocol. |

**--------------------------------------------------Next change-----------------------------------------------------**

#### 9.2.3.xxx SCG Activation Request

The *SCG Activation Request* IE indicates whether the SCG resources are required to be activated or deactivated.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| SCG Activation Request | M |  | ENUMERATED (Activate SCG, Deactivate SCG, …) |  |

#### 9.2.3.xxy SCG Activation Status

The *SCG Activation Status* IE indicates the status of the SCG resources.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| SCG Activation Status | M |  | ENUMERATED (SCG activated, SCG deactivated, …)  |  |

**--------------------------------------------------ASN.1 changes-----------------------------------------------------**

### 9.3.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for XnAP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

 ActivationIDforCellActivation,

 AMF-Region-Information,

 AMF-UE-NGAP-ID,

 AS-SecurityInformation,

-----------Skip unchanged------------

 Measurement-ID,

 RegistrationRequest,

 ReportCharacteristics,

 CellToReport,

 ReportingPeriodicity,

 CellMeasurementResult,

 UEHistoryInformationFromTheUE,

 MobilityParametersInformation,

 MobilityParametersModificationRange,

 RACHReportInformation,

 IABNodeIndication,

 SNTriggered,

 SCGIndicator,

 UESpecificDRX,

 SCGActivationRequest,

 SCGActivationStatus

FROM XnAP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-ContainerPairList{},

 ProtocolIE-Single-Container{},

 XNAP-PRIVATE-IES,

 XNAP-PROTOCOL-EXTENSION,

 XNAP-PROTOCOL-IES,

 XNAP-PROTOCOL-IES-PAIR

FROM XnAP-Containers

 id-ActivatedServedCells,

 id-ActivationIDforCellActivation,

 id-AdditionalDRBIDs,

 id-AMF-Region-Information,

-----------Skip unchanged------------

 id-RegistrationRequest,

 id-ReportCharacteristics,

 id-CellToReport,

 id-ReportingPeriodicity,

 id-CellMeasurementResult,

 id-NG-RANnode1CellID,

 id-NG-RANnode2CellID,

 id-NG-RANnode1MobilityParameters,

 id-NG-RANnode2ProposedMobilityParameters,

 id-MobilityParametersModificationRange,

 id-RACHReportInformation,

 id-IABNodeIndication,

 id-UERadioCapabilityID,

 id-SCGIndicator,

 id-UESpecificDRX,

 id-PDUSessionExpectedUEActivityBehaviour,

 id-SCGActivationRequest,

 id-SCGActivationStatus,

 maxnoofCellsinNG-RANnode,

 maxnoofDRBs,

 maxnoofPDUSessions,

 maxnoofQoSFlows

FROM XnAP-Constants;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- S-NODE ADDITION REQUEST

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SNodeAdditionRequest ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeAdditionRequest-IEs}},

 ...

}

SNodeAdditionRequest-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-UESecurityCapabilities CRITICALITY reject TYPE UESecurityCapabilities PRESENCE mandatory}|

 { ID id-s-ng-RANnode-SecurityKey CRITICALITY reject TYPE S-NG-RANnode-SecurityKey PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUE-AMBR CRITICALITY reject TYPE UEAggregateMaximumBitRate PRESENCE mandatory}|

 { ID id-selectedPLMN CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|

 { ID id-MobilityRestrictionList CRITICALITY ignore TYPE MobilityRestrictionList PRESENCE optional }|

 { ID id-indexToRatFrequSelectionPriority CRITICALITY reject TYPE RFSP-Index PRESENCE optional }|

 { ID id-PDUSessionToBeAddedAddReq CRITICALITY reject TYPE PDUSessionToBeAddedAddReq PRESENCE mandatory}|

 { ID id-MN-to-SN-Container CRITICALITY reject TYPE OCTET STRING PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE optional }|

 { ID id-ExpectedUEBehaviour CRITICALITY ignore TYPE ExpectedUEBehaviour PRESENCE optional }|

 { ID id-requestedSplitSRB CRITICALITY reject TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-PCellID CRITICALITY reject TYPE GlobalNG-RANCell-ID PRESENCE optional }|

 { ID id-DesiredActNotificationLevel CRITICALITY ignore TYPE DesiredActNotificationLevel PRESENCE optional }|

 { ID id-AvailableDRBIDs CRITICALITY reject TYPE DRB-List PRESENCE conditional}

 -- The IE shall be present if there is at least one PDUSessionResourceSetupInfo-SNterminated included --|

 { ID id-S-NG-RANnodeMaxIPDataRate-UL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-S-NG-RANnodeMaxIPDataRate-DL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-LocationInformationSNReporting CRITICALITY ignore TYPE LocationInformationSNReporting PRESENCE optional}|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-MaskedIMEISV CRITICALITY ignore TYPE MaskedIMEISV PRESENCE optional}|

 { ID id-NE-DC-TDM-Pattern CRITICALITY ignore TYPE NE-DC-TDM-Pattern PRESENCE optional}|

 { ID id-S-NG-RANnode-Addition-Trigger-Ind CRITICALITY reject TYPE S-NG-RANnode-Addition-Trigger-Ind PRESENCE optional}|

 { ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional}|

 { ID id-RequestedFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE RequestedFastMCGRecoveryViaSRB3 PRESENCE optional}|

 { ID id-UERadioCapabilityID CRITICALITY reject TYPE UERadioCapabilityID PRESENCE optional}|

 { ID id-SCGActivationRequest CRITICALITY ignore TYPE SCGActivationRequest PRESENCE optional},

 ...

}

**--------------------------------------------------Next change-----------------------------------------------------**

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- S-NODE ADDITION REQUEST ACKNOWLEDGE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SNodeAdditionRequestAcknowledge ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeAdditionRequestAcknowledge-IEs}},

 ...

}

SNodeAdditionRequestAcknowledge-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-PDUSessionAdmittedAddedAddReqAck CRITICALITY ignore TYPE PDUSessionAdmittedAddedAddReqAck PRESENCE mandatory}|

 { ID id-PDUSessionNotAdmittedAddReqAck CRITICALITY ignore TYPE PDUSessionNotAdmittedAddReqAck PRESENCE optional }|

 { ID id-SN-to-MN-Container CRITICALITY reject TYPE OCTET STRING PRESENCE mandatory}|

 { ID id-admittedSplitSRB CRITICALITY reject TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-RRCConfigIndication CRITICALITY reject TYPE RRCConfigIndication PRESENCE optional }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

 { ID id-LocationInformationSN CRITICALITY ignore TYPE Target-CGI PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-AvailableFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE AvailableFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-SCGActivationStatus CRITICALITY ignore TYPE SCGActivationStatus PRESENCE optional },

 ...

}

PDUSessionAdmittedAddedAddReqAck ::= SEQUENCE (SIZE(1..maxnoofPDUSessions)) OF PDUSessionAdmittedAddedAddReqAck-Item

PDUSessionAdmittedAddedAddReqAck-Item ::= SEQUENCE {

 pduSessionId PDUSession-ID,

 sn-terminated PDUSessionResourceSetupResponseInfo-SNterminated OPTIONAL,

 mn-terminated PDUSessionResourceSetupResponseInfo-MNterminated OPTIONAL,

-- NOTE: If neither the *PDU Session Resource Setup Response Info – SN terminated* IE

-- nor the *PDU Session Resource Setup Response Info – MN terminated* IE is present,

-- abnormal conditions as specified in clause 8.3.1.4 apply.

 iE-Extension ProtocolExtensionContainer { {PDUSessionAdmittedAddedAddReqAck-Item-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionAdmittedAddedAddReqAck-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSessionNotAdmittedAddReqAck ::= SEQUENCE {

 pduSessionResourcesNotAdmitted-SNterminated PDUSessionResourcesNotAdmitted-List OPTIONAL,

 pduSessionResourcesNotAdmitted-MNterminated PDUSessionResourcesNotAdmitted-List OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {PDUSessionNotAdmittedAddReqAck-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionNotAdmittedAddReqAck-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

AvailableFastMCGRecoveryViaSRB3 ::= ENUMERATED {true, ...}

**--------------------------------------------------Next change-----------------------------------------------------**

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- S-NODE MODIFICATION REQUEST

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SNodeModificationRequest ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationRequest-IEs}},

 ...

}

SNodeModificationRequest-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory}|

 { ID id-PDCPChangeIndication CRITICALITY ignore TYPE PDCPChangeIndication PRESENCE optional }|

 { ID id-selectedPLMN CRITICALITY ignore TYPE PLMN-Identity PRESENCE optional }|

 { ID id-MobilityRestrictionList CRITICALITY ignore TYPE MobilityRestrictionList PRESENCE optional }|

 { ID id-SCGConfigurationQuery CRITICALITY ignore TYPE SCGConfigurationQuery PRESENCE optional }|

 { ID id-UEContextInfo-SNModRequest CRITICALITY reject TYPE UEContextInfo-SNModRequest PRESENCE optional }|

 { ID id-MN-to-SN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-requestedSplitSRB CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-requestedSplitSRBrelease CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-DesiredActNotificationLevel CRITICALITY ignore TYPE DesiredActNotificationLevel PRESENCE optional }|

 { ID id-AdditionalDRBIDs CRITICALITY reject TYPE DRB-List PRESENCE optional }|

 { ID id-S-NG-RANnodeMaxIPDataRate-UL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-S-NG-RANnodeMaxIPDataRate-DL CRITICALITY reject TYPE BitRate PRESENCE optional }|

 { ID id-LocationInformationSNReporting CRITICALITY ignore TYPE LocationInformationSNReporting PRESENCE optional}|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-PCellID CRITICALITY reject TYPE GlobalNG-RANCell-ID PRESENCE optional }|

 { ID id-NE-DC-TDM-Pattern CRITICALITY ignore TYPE NE-DC-TDM-Pattern PRESENCE optional}|

 { ID id-RequestedFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE RequestedFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-RequestedFastMCGRecoveryViaSRB3Release CRITICALITY ignore TYPE RequestedFastMCGRecoveryViaSRB3Release PRESENCE optional }|

 { ID id-SNTriggered CRITICALITY ignore TYPE SNTriggered PRESENCE optional}|

 { ID id-SCGActivationRequest CRITICALITY ignore TYPE SCGActivationRequest PRESENCE optional},

 ...

}

**--------------------------------------------------Next change-----------------------------------------------------**

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- S-NODE MODIFICATION REQUEST ACKNOWLEDGE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SNodeModificationRequestAcknowledge ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationRequestAcknowledge-IEs}},

 ...

}

SNodeModificationRequestAcknowledge-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-PDUSessionAdmitted-SNModResponse CRITICALITY ignore TYPE PDUSessionAdmitted-SNModResponse PRESENCE optional }|

 { ID id-PDUSessionNotAdmitted-SNModResponse CRITICALITY ignore TYPE PDUSessionNotAdmitted-SNModResponse PRESENCE optional }|

 { ID id-SN-to-MN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-admittedSplitSRB CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-admittedSplitSRBrelease CRITICALITY ignore TYPE SplitSRBsTypes PRESENCE optional }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

 { ID id-LocationInformationSN CRITICALITY ignore TYPE Target-CGI PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-PDUSessionDataForwarding-SNModResponse CRITICALITY ignore TYPE PDUSessionDataForwarding-SNModResponse PRESENCE optional }|

 { ID id-RRCConfigIndication CRITICALITY reject TYPE RRCConfigIndication PRESENCE optional }|

 { ID id-AvailableFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE AvailableFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-ReleaseFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE ReleaseFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-SCGActivationStatus CRITICALITY ignore TYPE SCGActivationStatus PRESENCE optional},

 ...

}

PDUSessionAdmitted-SNModResponse ::= SEQUENCE {

 pduSessionResourcesAdmittedToBeAdded PDUSessionAdmittedToBeAddedSNModResponse OPTIONAL,

 pduSessionResourcesAdmittedToBeModified PDUSessionAdmittedToBeModifiedSNModResponse OPTIONAL,

 pduSessionResourcesAdmittedToBeReleased PDUSessionAdmittedToBeReleasedSNModResponse OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {PDUSessionAdmitted-SNModResponse-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionAdmitted-SNModResponse-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSessionAdmittedToBeAddedSNModResponse ::= SEQUENCE (SIZE(1..maxnoofPDUSessions)) OF PDUSessionAdmittedToBeAddedSNModResponse-Item

PDUSessionAdmittedToBeAddedSNModResponse-Item ::= SEQUENCE {

 pduSessionId PDUSession-ID,

 sn-terminated PDUSessionResourceSetupResponseInfo-SNterminated OPTIONAL,

 mn-terminated PDUSessionResourceSetupResponseInfo-MNterminated OPTIONAL,

-- NOTE: If neither the *PDU Session Resource Setup Response Info – SN terminated* IE

-- nor the *PDU Session Resource Setup Response Info – MN terminated* IE is present,

-- abnormal conditions as specified in clause 8.3.3.4 apply.

 iE-Extension ProtocolExtensionContainer { {PDUSessionAdmittedToBeAddedSNModResponse-Item-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionAdmittedToBeAddedSNModResponse-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSessionAdmittedToBeModifiedSNModResponse::= SEQUENCE (SIZE(1..maxnoofPDUSessions)) OF PDUSessionAdmittedToBeModifiedSNModResponse-Item

PDUSessionAdmittedToBeModifiedSNModResponse-Item ::= SEQUENCE {

 pduSessionId PDUSession-ID,

 sn-terminated PDUSessionResourceModificationResponseInfo-SNterminated OPTIONAL,

 mn-terminated PDUSessionResourceModificationResponseInfo-MNterminated OPTIONAL,

-- NOTE: If neither the *PDU Session Resource Modification Response Info – SN terminated* IE

-- nor the *PDU Session Resource Modification Response Info – MN terminated* IE is present,

-- abnormal conditions as specified in clause 8.3.3.4 apply.

 iE-Extension ProtocolExtensionContainer { {PDUSessionAdmittedToBeModifiedSNModResponse-Item-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionAdmittedToBeModifiedSNModResponse-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSessionAdmittedToBeReleasedSNModResponse ::= SEQUENCE {

 sn-terminated PDUSession-List-withDataForwardingRequest OPTIONAL,

 mn-terminated PDUSession-List-withCause OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {PDUSessionAdmittedToBeReleasedSNModResponse-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionAdmittedToBeReleasedSNModResponse-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSessionNotAdmitted-SNModResponse ::= SEQUENCE {

 pdu-Session-List PDUSession-List OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {PDUSessionNotAdmitted-SNModResponse-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionNotAdmitted-SNModResponse-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PDUSessionDataForwarding-SNModResponse ::= SEQUENCE {

 sn-terminated PDUSession-List-withDataForwardingRequest,

 iE-Extensions ProtocolExtensionContainer { {PDUSessionDataForwarding-SNModResponse-ExtIEs} } OPTIONAL,

 ...

}

PDUSessionDataForwarding-SNModResponse-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

ReleaseFastMCGRecoveryViaSRB3 ::= ENUMERATED {true, ...}

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- S-NODE MODIFICATION REQUIRED

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SNodeModificationRequired ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ SNodeModificationRequired-IEs}},

 ...

}

SNodeModificationRequired-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-M-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-S-NG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-Cause CRITICALITY ignore TYPE Cause PRESENCE mandatory}|

 { ID id-PDCPChangeIndication CRITICALITY ignore TYPE PDCPChangeIndication PRESENCE optional }|

 { ID id-PDUSessionToBeModifiedSNModRequired CRITICALITY ignore TYPE PDUSessionToBeModifiedSNModRequired PRESENCE optional }|

 { ID id-PDUSessionToBeReleasedSNModRequired CRITICALITY ignore TYPE PDUSessionToBeReleasedSNModRequired PRESENCE optional }|

 { ID id-SN-to-MN-Container CRITICALITY ignore TYPE OCTET STRING PRESENCE optional }|

 { ID id-SpareDRBIDs CRITICALITY ignore TYPE DRB-List PRESENCE optional }|

 { ID id-RequiredNumberOfDRBIDs CRITICALITY ignore TYPE DRB-Number PRESENCE optional }|

 { ID id-LocationInformationSN CRITICALITY ignore TYPE Target-CGI PRESENCE optional }|

 { ID id-MR-DC-ResourceCoordinationInfo CRITICALITY ignore TYPE MR-DC-ResourceCoordinationInfo PRESENCE optional }|

 { ID id-RRCConfigIndication CRITICALITY reject TYPE RRCConfigIndication PRESENCE optional }|

 { ID id-AvailableFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE AvailableFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-ReleaseFastMCGRecoveryViaSRB3 CRITICALITY ignore TYPE ReleaseFastMCGRecoveryViaSRB3 PRESENCE optional }|

 { ID id-SCGActivationRequest CRITICALITY ignore TYPE SCGActivationRequest PRESENCE optional},

 ...

}

**--------------------------------------------------Next change-----------------------------------------------------**

### 9.3.5 Information Element definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 id-CNTypeRestrictionsForEquivalent,

 id-CNTypeRestrictionsForServing,

**--------------------------------------------------Skip unchanged-----------------------------------------------------**

-- C

CAG-Identifier ::= BIT STRING (SIZE (32))

CapacityValue ::= INTEGER (0..100)

CapacityValueInfo ::= SEQUENCE {

 capacityValue CapacityValue,

 ssbAreaCapacityValueList SSBAreaCapacityValue-List OPTIONAL,

iE-Extension ProtocolExtensionContainer { {CapacityValueInfo-ExtIEs} } OPTIONAL,

 ...

}

CapacityValueInfo-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

Cause ::= CHOICE {

 radioNetwork CauseRadioNetworkLayer,

 transport CauseTransportLayer,

 protocol CauseProtocol,

 misc CauseMisc,

 choice-extension ProtocolIE-Single-Container { {Cause-ExtIEs} }

}

Cause-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

CauseRadioNetworkLayer ::= ENUMERATED {

 cell-not-available,

 handover-desirable-for-radio-reasons,

 handover-target-not-allowed,

 invalid-AMF-Set-ID,

 no-radio-resources-available-in-target-cell,

 partial-handover,

 reduce-load-in-serving-cell,

 resource-optimisation-handover,

 time-critical-handover,

 tXnRELOCoverall-expiry,

 tXnRELOCprep-expiry,

 unknown-GUAMI-ID,

 unknown-local-NG-RAN-node-UE-XnAP-ID,

 inconsistent-remote-NG-RAN-node-UE-XnAP-ID,

 encryption-and-or-integrity-protection-algorithms-not-supported,

 protection-algorithms-not-supported,

 multiple-PDU-session-ID-instances,

 unknown-PDU-session-ID,

 unknown-QoS-Flow-ID,

 multiple-QoS-Flow-ID-instances,

 switch-off-ongoing,

 not-supported-5QI-value,

 tXnDCoverall-expiry,

 tXnDCprep-expiry,

 action-desirable-for-radio-reasons,

 reduce-load,

 resource-optimisation,

 time-critical-action,

 target-not-allowed,

 no-radio-resources-available,

 invalid-QoS-combination,

 encryption-algorithms-not-supported,

 procedure-cancelled,

 rRM-purpose,

 improve-user-bit-rate,

 user-inactivity,

 radio-connection-with-UE-lost,

 failure-in-the-radio-interface-procedure,

 bearer-option-not-supported,

 up-integrity-protection-not-possible,

 up-confidentiality-protection-not-possible,

 resources-not-available-for-the-slice-s,

 ue-max-IP-data-rate-reason,

 cP-integrity-protection-failure,

 uP-integrity-protection-failure,

 slice-not-supported-by-NG-RAN,

 mN-Mobility,

 sN-Mobility,

 count-reaches-max-value,

 unknown-old-NG-RAN-node-UE-XnAP-ID,

 pDCP-Overload,

 drb-id-not-available,

 unspecified,

 ...,

 ue-context-id-not-known,

 non-relocation-of-context,

 cho-cpc-resources-tobechanged,

 rSN-not-available-for-the-UP,

 npn-access-denied,

 report-characteristics-empty,

 existing-measurement-ID,

 measurement-temporarily-not-available,

 measurement-not-supported-for-the-object,

 ue-power-saving,

 unknown-NG-RAN-node2-Measurement-ID,

 insufficient-ue-capabilities,

 normal-release,

 scg-activation-deactivation-failure,

 scg-deactivation-failure-due-to-data-transmission

}

CauseTransportLayer ::= ENUMERATED {

 transport-resource-unavailable,

 unspecified,

 ...

}

CauseProtocol ::= ENUMERATED {

 transfer-syntax-error,

 abstract-syntax-error-reject,

 abstract-syntax-error-ignore-and-notify,

 message-not-compatible-with-receiver-state,

 semantic-error,

 abstract-syntax-error-falsely-constructed-message,

 unspecified,

 ...

}

CauseMisc ::= ENUMERATED {

 control-processing-overload,

 hardware-failure,

 o-and-M-intervention,

 not-enough-user-plane-processing-resources,

 unspecified,

 ...

}

**--------------------------------------------------Skip unchanged-----------------------------------------------------**

-- S

SecondarydataForwardingInfoFromTarget-Item::= SEQUENCE {

 secondarydataForwardingInfoFromTarget DataForwardingInfoFromTargetNGRANnode,

 iE-Extensions ProtocolExtensionContainer { { SecondarydataForwardingInfoFromTarget-Item-ExtIEs} } OPTIONAL,

 ...

}

SecondarydataForwardingInfoFromTarget-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

SecondarydataForwardingInfoFromTarget-List ::= SEQUENCE (SIZE(1..maxnoofMultiConnectivityMinusOne)) OF SecondarydataForwardingInfoFromTarget-Item

SCGActivationRequest ::= ENUMERATED {activate-scg, deactivate-scg, ...}

SCGActivationStatus ::= ENUMERATED {scg-activated, scg-deactivated, ...}

SCGConfigurationQuery ::= ENUMERATED {true, ...}

SCGIndicator ::= ENUMERATED{released, ...}

SecondaryRATUsageInformation ::= SEQUENCE {

 pDUSessionUsageReport PDUSessionUsageReport OPTIONAL,

 qosFlowsUsageReportList QoSFlowsUsageReportList OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {SecondaryRATUsageInformation-ExtIEs} } OPTIONAL,

 ...

}

**--------------------------------------------------Skip unchanged-----------------------------------------------------**

### 9.3.7 Constant definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) xnap (2) version1 (1) xnap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 ProcedureCode,

 ProtocolIE-ID

FROM XnAP-CommonDataTypes;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Elementary Procedures

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-handoverPreparation ProcedureCode ::= 0

id-sNStatusTransfer ProcedureCode ::= 1

id-handoverCancel ProcedureCode ::= 2

id-retrieveUEContext ProcedureCode ::= 3

id-rANPaging ProcedureCode ::= 4

id-xnUAddressIndication ProcedureCode ::= 5

id-uEContextRelease ProcedureCode ::= 6

id-sNGRANnodeAdditionPreparation ProcedureCode ::= 7

id-sNGRANnodeReconfigurationCompletion ProcedureCode ::= 8

id-mNGRANnodeinitiatedSNGRANnodeModificationPreparation ProcedureCode ::= 9

id-sNGRANnodeinitiatedSNGRANnodeModificationPreparation ProcedureCode ::= 10

id-mNGRANnodeinitiatedSNGRANnodeRelease ProcedureCode ::= 11

id-sNGRANnodeinitiatedSNGRANnodeRelease ProcedureCode ::= 12

id-sNGRANnodeCounterCheck ProcedureCode ::= 13

id-sNGRANnodeChange ProcedureCode ::= 14

id-rRCTransfer ProcedureCode ::= 15

id-xnRemoval ProcedureCode ::= 16

id-xnSetup ProcedureCode ::= 17

id-nGRANnodeConfigurationUpdate ProcedureCode ::= 18

id-cellActivation ProcedureCode ::= 19

id-reset ProcedureCode ::= 20

id-errorIndication ProcedureCode ::= 21

id-privateMessage ProcedureCode ::= 22

id-notificationControl ProcedureCode ::= 23

id-activityNotification ProcedureCode ::= 24

id-e-UTRA-NR-CellResourceCoordination ProcedureCode ::= 25

id-secondaryRATDataUsageReport ProcedureCode ::= 26

id-deactivateTrace ProcedureCode ::= 27

id-traceStart ProcedureCode ::= 28

id-handoverSuccess ProcedureCode ::= 29

id-conditionalHandoverCancel ProcedureCode ::= 30

id-earlyStatusTransfer ProcedureCode ::= 31

id-failureIndication ProcedureCode ::= 32

id-handoverReport ProcedureCode ::= 33

id-resourceStatusReportingInitiation ProcedureCode ::= 34

id-resourceStatusReporting ProcedureCode ::= 35

id-mobilitySettingsChange ProcedureCode ::= 36

id-accessAndMobilityIndication ProcedureCode ::= 37

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Lists

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxEARFCN INTEGER ::= 262143

maxnoofAllowedAreas INTEGER ::= 16

maxnoofAMFRegions INTEGER ::= 16

maxnoofAoIs INTEGER ::= 64

maxnoofBluetoothName INTEGER ::= 4

maxnoofBPLMNs INTEGER ::= 12

maxnoofCAGs INTEGER ::= 12

maxnoofCAGsperPLMN INTEGER ::= 256

maxnoofCellIDforMDT INTEGER ::= 32

maxnoofCellsinAoI INTEGER ::= 256

maxnoofCellsinUEHistoryInfo INTEGER ::= 16

maxnoofCellsinNG-RANnode INTEGER ::= 16384

maxnoofCellsinRNA INTEGER ::= 32

maxnoofCellsUEMovingTrajectory INTEGER ::= 16

maxnoofDRBs INTEGER ::= 32

maxnoofEUTRABands INTEGER ::= 16

maxnoofEUTRABPLMNs INTEGER ::= 6

maxnoofEPLMNs INTEGER ::= 15

maxnoofExtSliceItems INTEGER ::= 65535

maxnoofEPLMNsplus1 INTEGER ::= 16

maxnoofForbiddenTACs INTEGER ::= 4096

maxnoofFreqforMDT INTEGER ::= 8

maxnoofMBSFNEUTRA INTEGER ::= 8

maxnoofMDTPLMNs INTEGER ::= 16

maxnoofMultiConnectivityMinusOne INTEGER ::= 3

maxnoofNeighbours INTEGER ::= 1024

maxnoofNeighPCIforMDT INTEGER ::= 32

maxnoofNIDs INTEGER ::= 12

maxnoofNRCellBands INTEGER ::= 32

maxnoofPLMNs INTEGER ::= 16

maxnoofPDUSessions INTEGER ::= 256

maxnoofProtectedResourcePatterns INTEGER ::= 16

maxnoofQoSFlows INTEGER ::= 64

maxnoofQoSParaSets INTEGER ::= 8

maxnoofRANAreaCodes INTEGER ::= 32

maxnoofRANAreasinRNA INTEGER ::= 16

maxnoofRANNodesinAoI INTEGER ::= 64

maxnoofSCellGroups INTEGER ::= 3

maxnoofSCellGroupsplus1 INTEGER ::= 4

maxnoofSensorName INTEGER ::= 3

maxnoofSliceItems INTEGER ::= 1024

maxnoofSNPNIDs INTEGER ::= 12

maxnoofsupportedPLMNs INTEGER ::= 12

maxnoofsupportedTACs INTEGER ::= 256

maxnoofTAforMDT INTEGER ::= 8

maxnoofTAI INTEGER ::= 16

maxnoofTAIsinAoI INTEGER ::= 16

maxnooftimeperiods INTEGER ::= 2

maxnoofTNLAssociations INTEGER ::= 32

maxnoofUEContexts INTEGER ::= 8192

maxNRARFCN INTEGER ::= 3279165

maxNrOfErrors INTEGER ::= 256

maxnoofslots INTEGER ::= 5120

maxnoofExtTLAs INTEGER ::= 16

maxnoofGTPTLAs INTEGER ::= 16

maxnoofCHOcells INTEGER ::= 8

maxnoofPC5QoSFlows INTEGER ::= 2064

maxnoofSSBAreas INTEGER ::= 64

maxnoofRACHReports INTEGER ::= 64

maxnoofNRSCSs INTEGER ::= 5

maxnoofPhysicalResourceBlocks INTEGER ::= 275

maxnoofAdditionalPDCPDuplicationTNL INTEGER ::= 2

maxnoofRLCDuplicationstate INTEGER ::= 3

maxnoofWLANName INTEGER ::= 4

maxnoofNonAnchorCarrierFreqConfig INTEGER ::= 15

maxnoofDataForwardingTunneltoE-UTRAN INTEGER ::= 256

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-ActivatedServedCells ProtocolIE-ID ::= 0

id-ActivationIDforCellActivation ProtocolIE-ID ::= 1

id-admittedSplitSRB ProtocolIE-ID ::= 2

id-admittedSplitSRBrelease ProtocolIE-ID ::= 3

id-AMF-Region-Information ProtocolIE-ID ::= 4

id-AssistanceDataForRANPaging ProtocolIE-ID ::= 5

id-BearersSubjectToCounterCheck ProtocolIE-ID ::= 6

id-Cause ProtocolIE-ID ::= 7

id-cellAssistanceInfo-NR ProtocolIE-ID ::= 8

id-ConfigurationUpdateInitiatingNodeChoice ProtocolIE-ID ::= 9

id-CriticalityDiagnostics ProtocolIE-ID ::= 10

id-XnUAddressInfoperPDUSession-List ProtocolIE-ID ::= 11

id-DRBsSubjectToStatusTransfer-List ProtocolIE-ID ::= 12

id-ExpectedUEBehaviour ProtocolIE-ID ::= 13

id-GlobalNG-RAN-node-ID ProtocolIE-ID ::= 14

id-GUAMI ProtocolIE-ID ::= 15

id-indexToRatFrequSelectionPriority ProtocolIE-ID ::= 16

id-initiatingNodeType-ResourceCoordRequest ProtocolIE-ID ::= 17

id-List-of-served-cells-E-UTRA ProtocolIE-ID ::= 18

id-List-of-served-cells-NR ProtocolIE-ID ::= 19

id-LocationReportingInformation ProtocolIE-ID ::= 20

id-MAC-I ProtocolIE-ID ::= 21

id-MaskedIMEISV ProtocolIE-ID ::= 22

id-M-NG-RANnodeUEXnAPID ProtocolIE-ID ::= 23

id-MN-to-SN-Container ProtocolIE-ID ::= 24

id-MobilityRestrictionList ProtocolIE-ID ::= 25

id-new-NG-RAN-Cell-Identity ProtocolIE-ID ::= 26

id-newNG-RANnodeUEXnAPID ProtocolIE-ID ::= 27

id-UEReportRRCTransfer ProtocolIE-ID ::= 28

id-oldNG-RANnodeUEXnAPID ProtocolIE-ID ::= 29

id-OldtoNewNG-RANnodeResumeContainer ProtocolIE-ID ::= 30

id-PagingDRX ProtocolIE-ID ::= 31

id-PCellID ProtocolIE-ID ::= 32

id-PDCPChangeIndication ProtocolIE-ID ::= 33

id-PDUSessionAdmittedAddedAddReqAck ProtocolIE-ID ::= 34

id-PDUSessionAdmittedModSNModConfirm ProtocolIE-ID ::= 35

id-PDUSessionAdmitted-SNModResponse ProtocolIE-ID ::= 36

id-PDUSessionNotAdmittedAddReqAck ProtocolIE-ID ::= 37

id-PDUSessionNotAdmitted-SNModResponse ProtocolIE-ID ::= 38

id-PDUSessionReleasedList-RelConf ProtocolIE-ID ::= 39

id-PDUSessionReleasedSNModConfirm ProtocolIE-ID ::= 40

id-PDUSessionResourcesActivityNotifyList ProtocolIE-ID ::= 41

id-PDUSessionResourcesAdmitted-List ProtocolIE-ID ::= 42

id-PDUSessionResourcesNotAdmitted-List ProtocolIE-ID ::= 43

id-PDUSessionResourcesNotifyList ProtocolIE-ID ::= 44

id-PDUSession-SNChangeConfirm-List ProtocolIE-ID ::= 45

id-PDUSession-SNChangeRequired-List ProtocolIE-ID ::= 46

id-PDUSessionToBeAddedAddReq ProtocolIE-ID ::= 47

id-PDUSessionToBeModifiedSNModRequired ProtocolIE-ID ::= 48

id-PDUSessionToBeReleasedList-RelRqd ProtocolIE-ID ::= 49

id-PDUSessionToBeReleased-RelReq ProtocolIE-ID ::= 50

id-PDUSessionToBeReleasedSNModRequired ProtocolIE-ID ::= 51

id-RANPagingArea ProtocolIE-ID ::= 52

id-PagingPriority ProtocolIE-ID ::= 53

id-requestedSplitSRB ProtocolIE-ID ::= 54

id-requestedSplitSRBrelease ProtocolIE-ID ::= 55

id-ResetRequestTypeInfo ProtocolIE-ID ::= 56

id-ResetResponseTypeInfo ProtocolIE-ID ::= 57

id-RespondingNodeTypeConfigUpdateAck ProtocolIE-ID ::= 58

id-respondingNodeType-ResourceCoordResponse ProtocolIE-ID ::= 59

id-ResponseInfo-ReconfCompl ProtocolIE-ID ::= 60

id-RRCConfigIndication ProtocolIE-ID ::= 61

id-RRCResumeCause ProtocolIE-ID ::= 62

id-SCGConfigurationQuery ProtocolIE-ID ::= 63

id-selectedPLMN ProtocolIE-ID ::= 64

id-ServedCellsToActivate ProtocolIE-ID ::= 65

id-servedCellsToUpdate-E-UTRA ProtocolIE-ID ::= 66

id-ServedCellsToUpdateInitiatingNodeChoice ProtocolIE-ID ::= 67

id-servedCellsToUpdate-NR ProtocolIE-ID ::= 68

id-s-ng-RANnode-SecurityKey ProtocolIE-ID ::= 69

id-S-NG-RANnodeUE-AMBR ProtocolIE-ID ::= 70

id-S-NG-RANnodeUEXnAPID ProtocolIE-ID ::= 71

id-SN-to-MN-Container ProtocolIE-ID ::= 72

id-sourceNG-RANnodeUEXnAPID ProtocolIE-ID ::= 73

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END

-- ASN1STOP

**--------------------------------------------------End of the change-----------------------------------------------------**